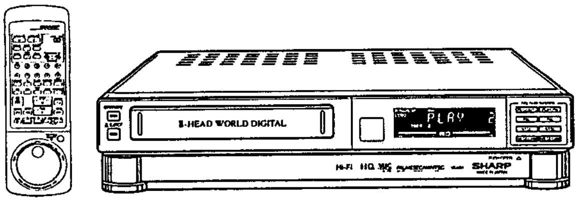
SHARP SERVICE MANUAL

S82J2VC-WD1//

VHS VIDEO CASSETTE RECORDER



MODELS VC-WD1 VC-NX1

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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SHARP CORPORATION

SPECIFICATIONS

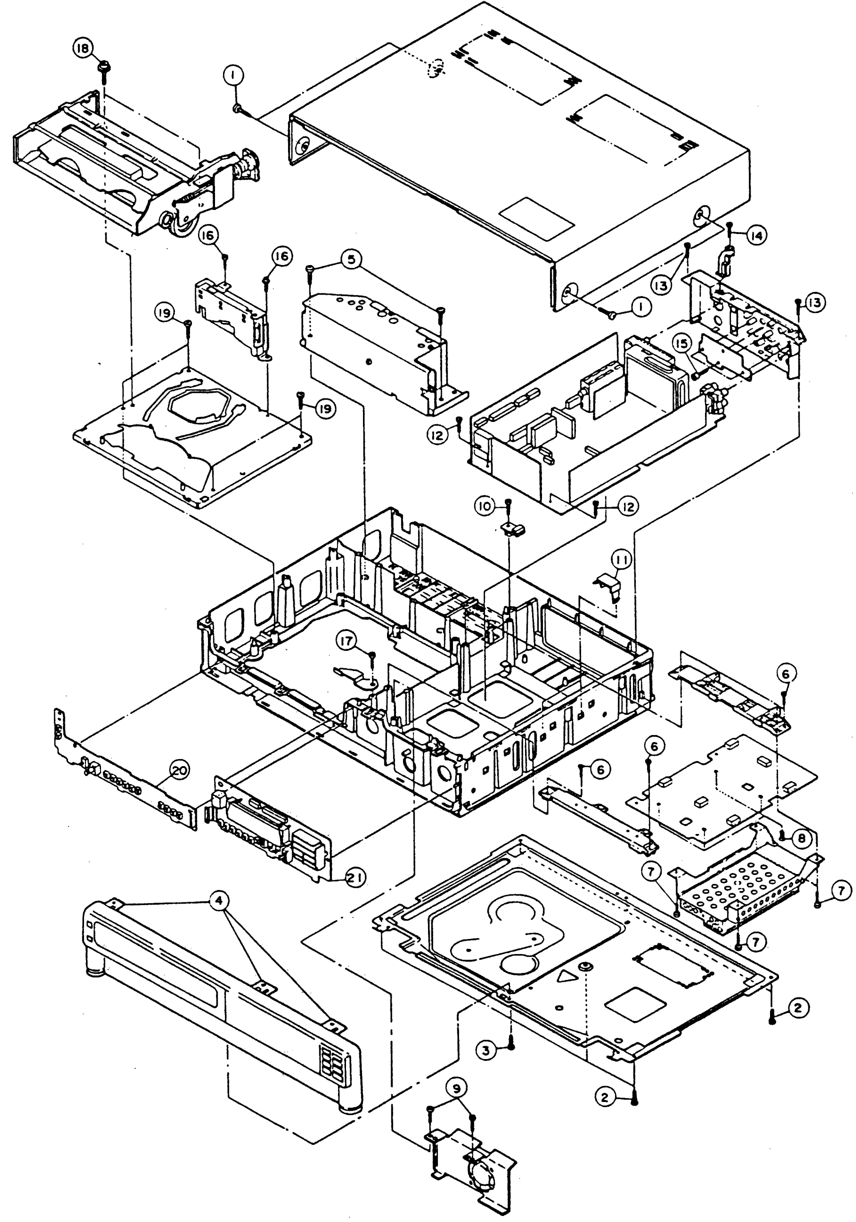
Format: VHS PAL, MESECAM, NTSC standard
Video recording system: Rotary, slant azimuth two head helical scan system
Video signal: PAL, SECAM, NTSC
colour or monochrome
(CCIR System B/G, I, D/K, M) signal
Recording playing time: 240 min max. with SHARP E-240 tape (PAL/MESECAM/SECAM in SP mode)
8 hours max. with SHARP E-240 tape (PAL/MESECAM/SECAM in LP mode)
160 min max. with SHARP T-160 tape (NTSC in SP mode)
8 hours max. with SHARP T-160 tape (NTSC in EP mode)
Tape width: 12.7 mm
Tape speed: 23.39 mm/sec. (PAL/MESECAM in SP mode) 33.35mm/msec. (NTSC in SP mode)
11.7 mm/sec. (PAL/MESECAM in LP mode) 16.68mm/msec. (NTSC in LP mode)
(PB only)
11.12 mm/sec. (NTSC in EP mode)
Antenna: 75 ohm unbalanced
Receiving channel: VHF E2~E12, (44.25MHz~295.25MHz)
UHF E21~E69, (471.25MHz~885.25MHz)
RF converter output signal: UHF Channel E30~E39 (adjustable). Preset to Channel E36
Power requirement: AC110~240V, 50/60 Hz : VC-WD1, AC100~240V, 50/60Hz : VC-NX1
Power consumption: Approx. 33W (at AC220V 50Hz) : VC-WD1
Approx. 33W (at AC100V 50Hz) : VC-NX1
Operating temperture: 5°C to 40°C
Storage temperature: - 20°C to 60°C
Weight: 6.0 kg
Dimensions: 430 mm (W) x 348 mm (D) x 89 mm (H)
VIDEO
Input: 0.5~2.0 Vp-p, 75 ohm
Output: 1.0 Vp-p, 75 ohm
AUDIO
Input: Line: - 8 dB, more than 47k ohm (with - 4dB/ - 8dB ATT. SW)
Output: Line: - 8 dB, less than 1k ohm
Accessories included: Antenna 75 ohm coaxial connector cable (plug provided)
Operation Manual
SHUTTLE remote control
Dry Battery
AV Cable
AC Plug Adapter

> As part of our policy of continuous improvement, we reserve the right to alter design and specifications without notice.

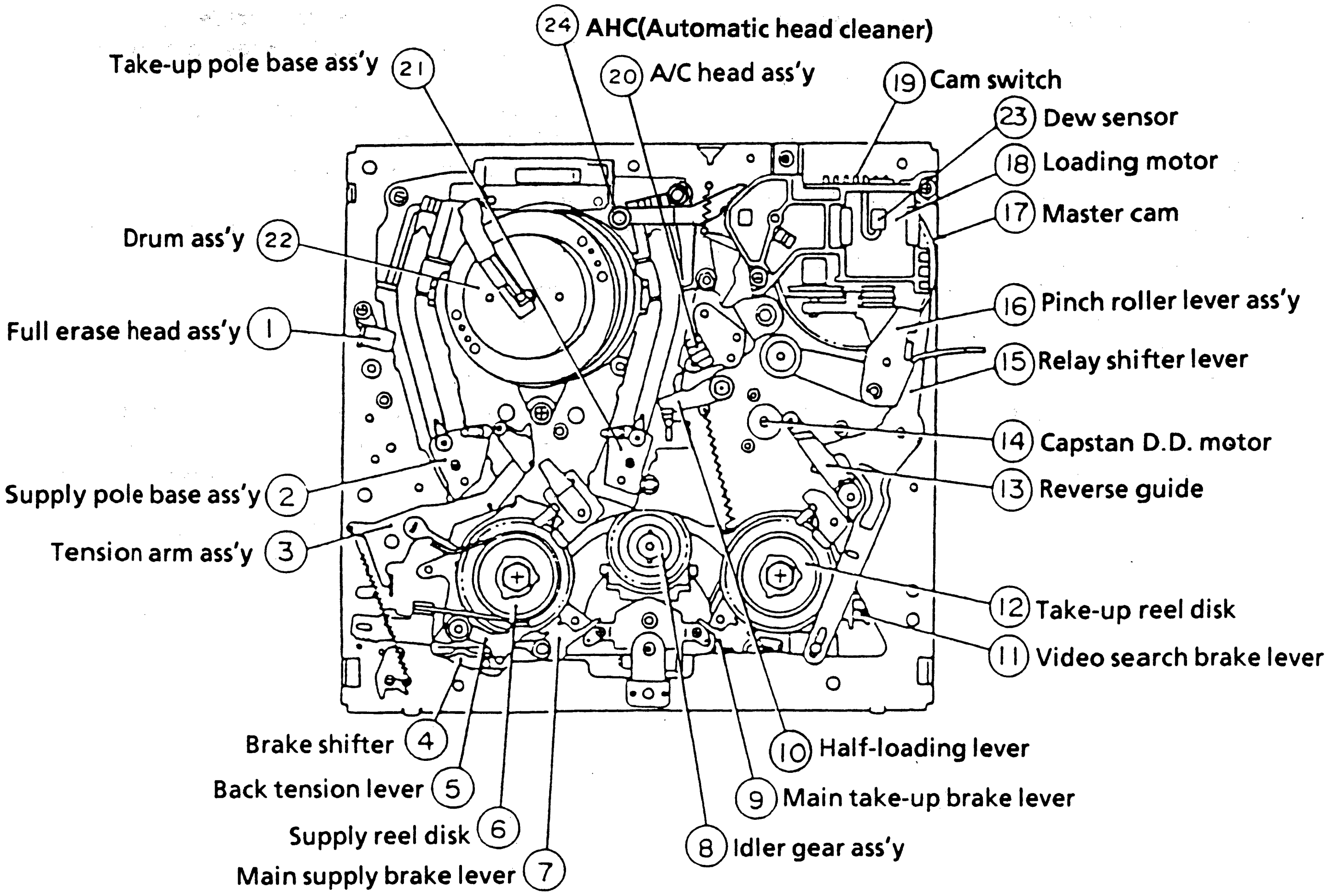
Note: The antenna must correspond to the new standard DIN 45325
(IEC 169-2) for combined UHF/VHF antenna with 75 ohm connector.

DISASSEMBLY AND REASSEMBLY

1. Remove the four upper cabinet fastening screws ①.
2. Remove the six bottom panel fastening screws ②.
3. Remove the one front panel fastening screws ③.
4. Release the six clips ④ and remove the front panel.
5. Remove the two power unit fastening screws ⑤.
6. Remove the four ANALOG PWB holder fastening screws ⑥.
7. Remove the four ANALOG PWB fastening screws ⑦.
8. Remove the four push rivets ⑧ which fasten the ANALOG PWB and the holder.
9. Remove the two motor fan angle fastening screws ⑨.
10. Remove the one SYSCON SERVO PWB holder fastening screw ⑩.
11. Remove the two Hi-Fi PWB holders ⑪.
12. Remove the two main PWB fastening screws ⑫.
13. Remove the two antenna terminal cover fastening screws ⑬.
14. Remove the one RF converter holder fastening screw ⑭.
15. Remove the three Jack PWB fastening screws ⑮.
16. Remove the two head amp PWB fastening screws ⑯.
17. Remove the one screw ⑰ from the cassette housing control assembly.
18. Remove the two cassette housing control assembly mounting screw ⑱.
19. Remove the four mechanism chassis fastening screws ⑲.
20. Release the operation PWB ⑳ fastening chips.
21. Release the timer PWB ㉑ fastening chips.

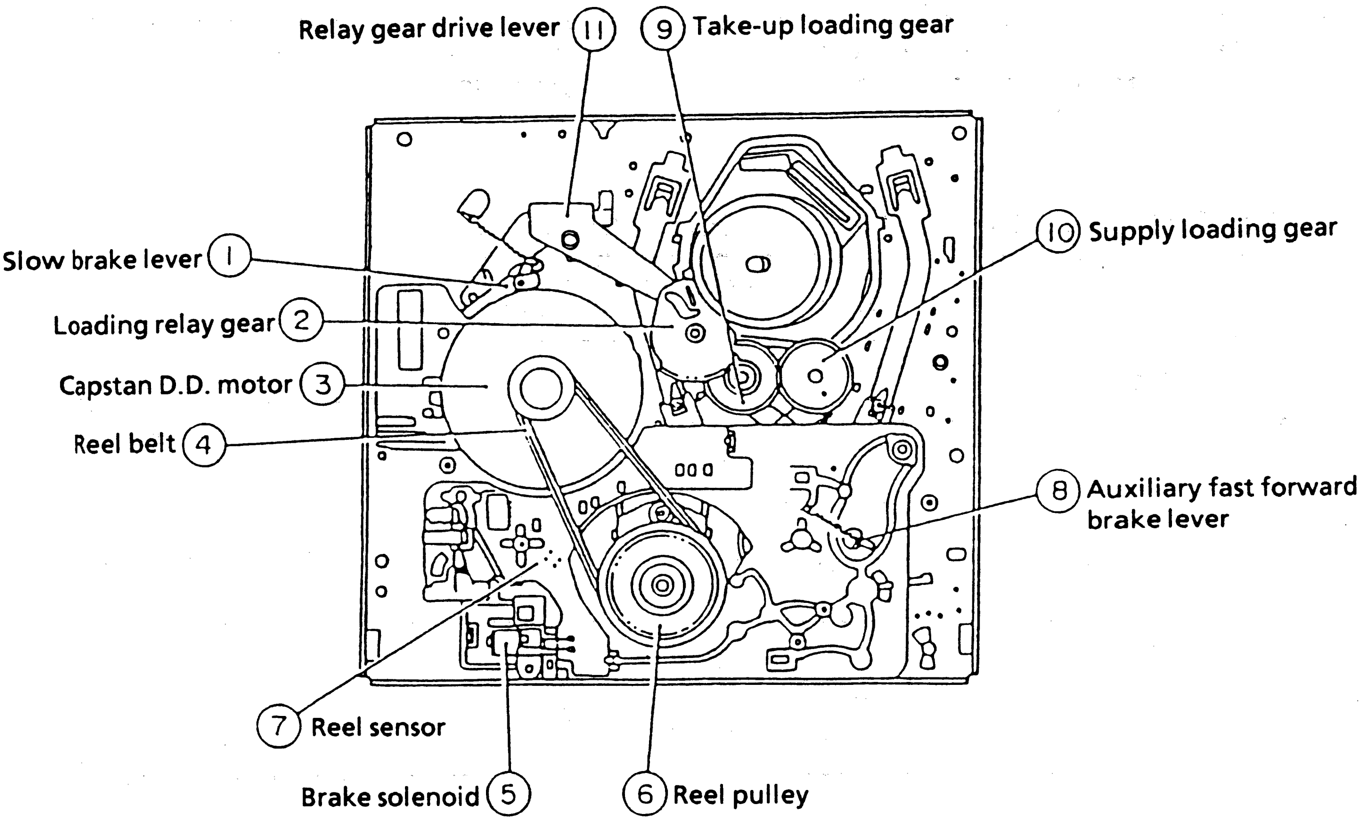


FUNCTION OF MAJOR MECHANICAL PARTS (TOP VIEW)


㉔ AHC(Automatic head cleaner)
Take-up pole base ass'y ㉑
⑳ A/C head ass'y
⑲ Cam switch
㉓ Dew sensor
⑱ Loading motor
⑰ Master cam
Drum ass'y ㉒
Full erase head ass'y ①
⑯ Pinch roller lever ass'y
⑮ Relay shifter lever
⑭ Capstan D.D. motor
⑬ Reverse guide
Supply pole base ass'y ②
Tension arm ass'y ③
⑫ Take-up reel disk
⑪ Video search brake lever
Brake shifter ④
Back tension lever ⑤
Supply reel disk ⑥
Main supply brake lever ⑦
⑩ Half-loading lever
⑨ Main take-up brake lever
⑧ Idler gear ass'y

No.	Function	No.	Function
1.	Full erase head ass'y Erase the whole records on the tape in the recording mode.	13.	Reverse guide Pulls out the tape in the video search rewind mode, and controls the tape drive train height with the upper and lower guides.
3.	Tension arm ass'y Detects the tension of tape while running, and brakes the supply reel disk via the tension band.	15.	Relay shifter lever Transmits the operation of the master cam to the brake shifter, and operates the reverse guide.
4.	Brake shifter Set the position of brake or the like in accordance with the modes such as stop and playback. Back tension lever.	16.	Pinch roller lever ass'y Press-fits the tape to the capstan during tape running. The right protrusion switches the clutch of the cassette housing control assembly in " tape eject", and makes the mechanism eject the tape.
5.	Back tension lever Bakes the supply reel disk to a certain degree to prevent tape slackening during "loading" and "shifting from playback to video search rewind".	17.	Master cam Turns clockwise during loading, and counterclockwise during unloading, and moves the shifter or the like in accordance with each mode.
7.	Main supply brake Brakes the supply reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.	18.	Loading motor A motive power which drives the mechanism. It transmits the power to the master cam and cassette housing control assembly via the belt.
9.	Main take-up brake Brakes the take-up reel disk to prevent tape slackening when the unit is stopped in fast forward or rewind mode.	19.	Cam switch Rotates synchronously with the master cam, and detects the position of each mode by means of the internal switch.
10.	Half-loading level Bring the tape in contact with the A/C head, putting it in half-loading state in the fast forward or rewind mode.	23.	Dew sensor Detects the generation of dew in the set. It stops the mechanical action of the set when finding any dew in the set.
11.	Video search brake lever It is in contact with the take-up reel disk normally, and brakes it to a certain degree. It applies larger brake in the video search rewind mode.		

FUNCTION OF MAJOR MECHANICAL PARTS (BOTTOM VIEW)


Relay gear drive lever ⑪
⑨ Take-up loading gear
Slow brake lever ①
Loading relay gear ②
Capstan D.D. motor ③
Reel belt ④
⑩ Supply loading gear
⑧ Auxiliary fast forward brake lever
⑦ Reel sensor
Brake solenoid ⑤
⑥ Reel pulley

No.	Function	No.	Function
1.	Slow brake Gets in contact with the capstan D.D. motor linking to the master cam in the slow still mode, and brakes it to a certain degree.	7.	Reel sensor An element which sheds the light onto the reflection plate affixed to the bottom side of the reel disk, and detects the rotation of the reel disk through receiving the reflected light.
3.	Capstan D.D. motor A motive power which runs the tape. It transmits the power via the reel belt.	8.	Auxiliary fast forward brake lever Brakes the supply reel disk to a certain degree in the fast forward and rewind modes.
4.	Reel belt Transmits the power to run the tape to the reel pulley.	9.	Take-up loading gear Shifts the take-up pole base and guide roller via the loading relay gear, and applies the tape around the drum assembly, as well as transmits the power to the supply loading gear.
5.	Brake solenoid Adsorbs and holds the brake shifter in the fast forward and rewind modes, and releases it in the stop mode.	10.	Supply loading gear Shifts the supply pole base and guide roller via the take-up loading gear, and applies the tape around the drum assembly.
6.	Reel pulley Transmits the power of the capstan D.D. motor to the reel disk via the reel idler.	11.	Relay gear drive lever Transmits the movement of the master cam to the take-up loading gear via the loading relay gear.

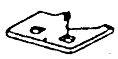
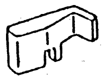
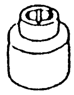
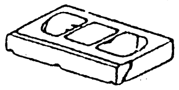
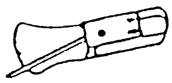
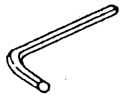
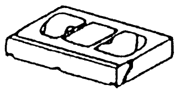
ADJUSTMENT, REPLACEMENT AND ASSEMBLY OF MECHANICAL UNITS

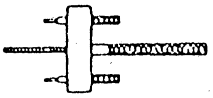
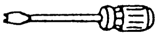
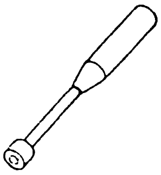
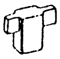
Here we will describe a relatively simple service work in the field, not referring to the more complicated repairs which would require the use of special equipment and tools (drum assembly replacement, for example).

We are sure that the easy-to-handle tools listed below would be more than handy for periodical maintenance to keep the machine in its original working condition.

TOOLS NECESSARY FOR ADJUSTING THE MECHANICAL UNITS

The following tools are required for proper service and satisfactory repair.

No.	Jig Item	Part No.	Price Code	Configuration	Remarks
1	Reel Disk Height Adjustment Jig	JiGRH0002	BR		These jigs are used for checking and adjusting the reel disk height
2	Master Plane	JiGMP0001	BY		
3	A/C Head Tilt Adjustment Jig	JiGACH-F18	BU		This Jig is used for setting the A/C head tilt.
4	Torque Gauge (90g)	JiGTG0090	CM		These jigs are used for checking and adjusting the torque of take-up and supply reel disks.
	Torque Gauge (1.2 kg)	JiGTG1200	CN		
5	Gauge Head	JiGTH0006	AW		
6	Cassette Torque Meter	JiGVHT-063	CZ		This cassette torque meter is used for checking and adjusting the torque of take-up tape back tension.
7	Tension Gauge (300g)	JiGSG0300	BF		There are two Gauges used for the tension measurements, 300 g and 2.0 kg.
	Tension Gauge (2.0kg)	JiGSG2000	BS		
8	Hex Wrench (0.9mm)	JiGHW0009	AE		These Jigs are used for loosening or tightening special hexagon type screws.
	Hex Wrench (1.2mm)	JiGHW0012	AE		
	Hex Wrench (1.5mm)	JiGHW0015	AE		
9	Alignment Tape (NTSC)	VR0ATSV	CD		These Tapes are especially used for electrical fine adjustment.
		VR9EBZCS	BP		
	Alignment Tape (PAL)	VR0CPSV	CD		
	Hi-Fi Alignment Tape (PAL)	VR0CBFFS	CB		
	Alignment Tape (SECAM)	VR0CSSV	CK		
	Hi-Fi Alignment Tape (NTSC)	VR0ATFPS	CA		

No.	Jig Item	Part No.	Price Code	Configuration	Remarks
10	Drum Replacing Jig	JiGDT-0001	BG		This is used for replacement of the VCR's upper drum.
11	Tension Gauge Adapter	JiGADP003	BK		This Jig is used with the tension gauge. Rotary Transformer Clearance Adjusting Jig.
12	Special Bladed Screwdriver	JiGDRiVERH-4	AP		This Screwdriver is used for adjusting the guide roller height.
13	Tension Band and Plate Adjustment Jig	JiGDRiVER-6	BM		This Jig is used for adjusting the tension band and tension plate.
14	Torque Driver (5kg)	JiGTD1200	CB		This is used to screw down resin-made parts: the specified torque is 5 kg.
15	Box Driver	JiGDRiVER110-7	AS		This Jig is used for height adjustment of the A/C head and X-position.
		JiGDRiVER110-4	AV		This Jig is used for height adjustment of the retaining guide.
16	Retaining Guide Height Adjustment Jig	JiGGH-F18	BU		This Jig is used for height adjustment of the retaining guide.
17	Reverse Guide Height Adjustment Jig	JiGRVGH-F18	BU		This Jig is used for height adjustment of the reverse guide.

NOTE:
Current JiGMA0001 contains Master Plane (JiGMP0001) and Disk Height Adjusting Jig (JiGRH0001).
Even though new Disk Height Adjusting Jig (JiGRH0002) covers greater height, this new Jig (JiGRH0002) can be used for current JiGRH0001, but current Jig (JiGRH0001) cannot be used as JiGRH0002.
Master Plane (JiGMP0001) can be used with JiGRH0001 and JiGRH0002 as well.

MECHANICAL PARTS REQUIRING PERIODICAL INSPECTION

Use the following table as a guide to maintain the mechanical parts in good operating condition.

Maintained Parts	500 hrs.	1000 hrs.	1500 hrs.	2000 hrs.	Possible symptom encountered	Remarks
Guide roller ass'y	□	□	□	○	Lateral noises Head occasionally blocked	Abnormal rotation or significant vibration requires replacement.
Supply impedance roller	□	□	□	○		
Supply impedance roller (inner)		□		□		Clean with pure high quality isopropyl alcohol.
Supply impedance roller flange	□	□	□			Clean tape contact area with the specified cleaning liquid.
Retaining guide	□	□	□	□		
Slant pole	□	□	□	○		
Video head (Upper drum ass'y)	□	○□	□	○□	Poor S/N ratio, no color	Clean tape contact area with the specified cleaning liquid.
Full-erase head	□	□	□	○	Poor color, beating	
A/C head	□	□	□	○	Sound too small or distorted	
Lower drum ass'y	□	□	□	○	No tape running, tape slack, no fast forward/rewind motion	
Capstan D.D. Motor	□	□	□	○	No tape running, uneven color	Clean rubber and rubber contact area with the specified cleaning liquid.
Pinch roller	□	□	□	○	No tape running, tape slack	
Reel belt		□		○	No tape running, tape slack, no fast forward/rewind motion	
Loading belt/Cassette loading belt		□		○	Cassette not loaded or unloaded	
Tension band ass'y				○	Lateral image swing	
Loading motor				○	Cassette not loaded or unloaded	
AHC (Automatic Head Cleaner)		○		○		Replace the roller of the cleaner when it wears down. Just change the video head cleaner arm assembly for new one.
Reel block*					See the chart below	
***See the table below for servicing the reel block parts.**						
Supply/Take-up reel disks		□△		△○	No tape running, tape slack	Clean with pure high quality isopropyl alcohol.
Main supply/take-up brake levers				○	Tape slack	
Video search brake lever				○		
Idler gear ass'y				○	No tape running	
Reel Pulley		□△		□○		

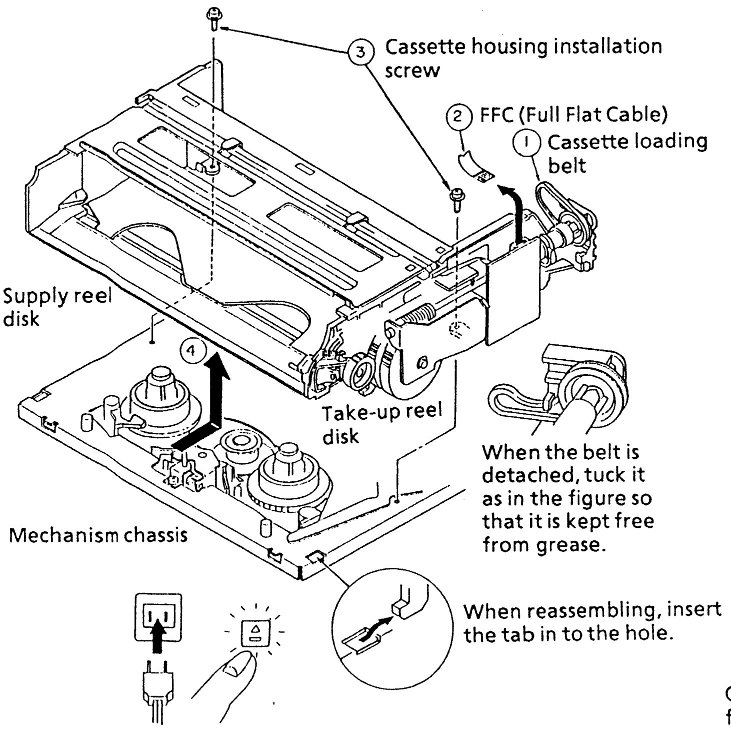
NOTE:
○: Part replacement.
□: Cleaning (For cleaning, use a lint-free cloth dampened with pure isopropyl alcohol).
△: Oil refilling (The indicated point should be lubricated with high quality spindle oil every 1000 hrs).

This model has no adjusting parts for torques, tensions, etc. If the reading is outside the specified range, clean or replace the part.

REMOVAL AND REASSEMBLY OF CASSETTE HOUSING CONTROL ASSEMBLY

- **Removal**

1. Set the cassette ejected condition in the cassette eject mode.
2. Unplug the recorder from the main source.
3. Follow the procedures below in the specified order.
   a) Remove the cassette loading belt ①.
   b) Disconnect the FFC (Full Flat Cable) ②.
   c) Remove the cassette housing installation screws ③.
   d) Slide and pull out the cassette housing control assembly ④ upward.


③ Cassette housing installation screw
② FFC (Full Flat Cable)
① Cassette loading belt
Supply reel disk
④
Take-up reel disk
Mechanism chassis

When the belt is detached, tuck it as in the figure so that it is kept free from grease.

When reassembling, insert the tab in to the hole.

Figure 1-1.

- **Reassembly**

1. Before installation of the cassette housing control assembly, place the unit in the stop mode with the power on, then unplug the power cord. (The main body is placed in the eject mode.)
2. Follow the procedures for removal in the reverse order.

Notes:

1. Be sure to unplug the power cord in removal and reassembly.
2. Keep the cassette loading belt free from grease. In case of its adhesion, clean the belt.
3. In using a magnet screw driver, be sure to keep it away from the A/C head, FE (Full Erase) head, or the drum.
4. In removal and reassembly, take care not to hit the cassette housing control assembly or tools against the guide pin, drum, or the like thereabout.
5. Place the unit in the eject mode in removal or reassembly of the cassette housing control assembly.
6. Load the cassette once onto the cassette housing control assembly after reassembly. (If the cassette housing control assembly normally operates after this, the phases of mechanism and the cassette controller are accurately adjusted after ejection.)

MECHANICAL OPERATION CHECK WITHOUT CASSETTE

When power is on, the general operations of the mechanism can be checked without a cassette. Note the following points.

1. Check video search rewind and rewind, rotating the take-up reel disk ⑤ by hand (in either normal or reverse direction). If it is not rotated, the reel sensor works to shift the mechanism to the eject mode.
2. When the stop button is pressed, the mechanism does not stop at a normal stop position. It shifts to the eject mode and stops.
3. When the stop button is pressed in the playback, video search rewind, and video search forward modes, the supply reel disk ⑥ keeps on rotating for several seconds for elimination of tape slack in the course of shifting to the eject mode. In such a case, rotate the take-up reel disk ⑤ somewhat by hand, and the supply reel disk ⑥ stops, which can reduce the working time.

REPLACEMENT OF WORM WHEEL ASSEMBLY

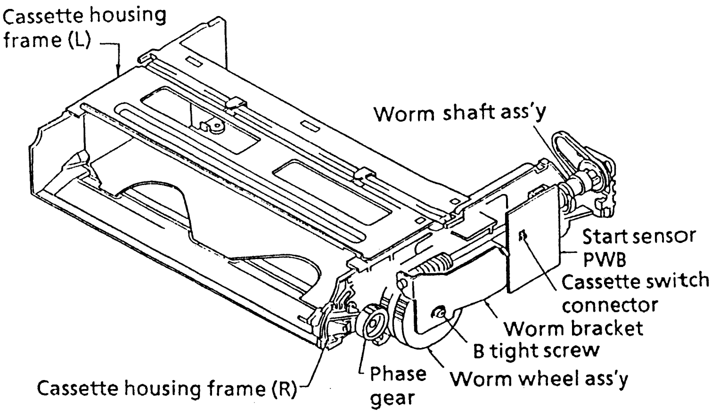

Cassette housing frame (L)
Worm shaft ass'y
Start sensor PWB
Cassette switch connector
Worm bracket
B tight screw
Cassette housing frame (R)
Phase gear
Worm wheel ass'y

Figure 1-2.

- **Removal**

1. Unsolder the cassette switch connectors from the start sensor PWB.

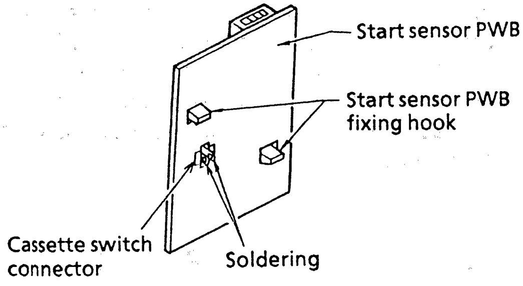

Start sensor PWB
Start sensor PWB fixing hook
Cassette switch connector
Soldering

Figure 1-3.

2. Lift the start sensor PWB pressing the two start sensor PWB fixing hooks inward.

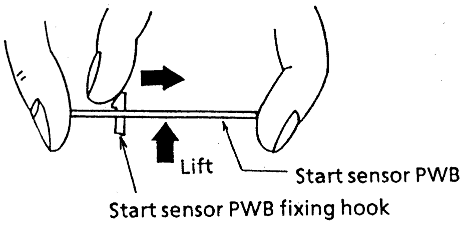

Lift
Start sensor PWB
Start sensor PWB fixing hook

Figure 1-4.

3. Unscrew one B tight screw to detach the worm bracket.
   Note:
   The worm shaft bearing can easily come out of position. So be careful not to lose it.

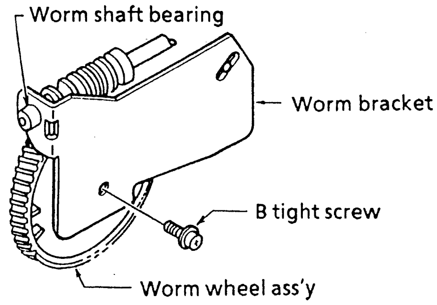

Worm shaft bearing
Worm bracket
B tight screw
Worm wheel ass'y

Figure 1-5.

4. Remove the worm shaft assembly, pulley, and cassette loading belt all from the cassette housing frame (R).

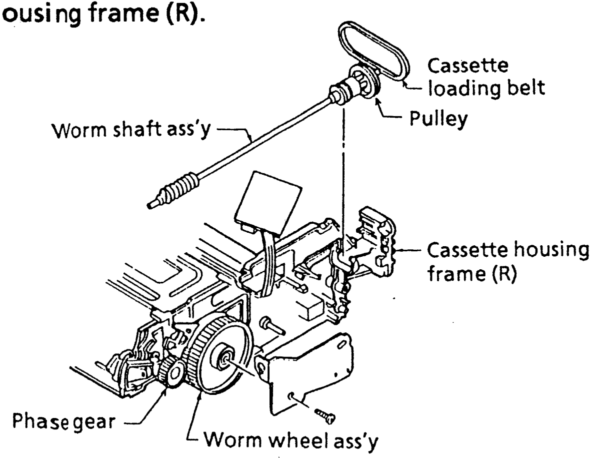

Cassette loading belt
Pulley
Worm shaft ass'y
Cassette housing frame (R)
Phase gear
Worm wheel ass'y

Figure 1-6.

5. Place the slider pin just above the worm wheel assembly (Figure 1-7). (The retainer of the slider is locked at two positions hen. So unlock it as in the Figure 1-8.)
6. Pull out the worm wheel assembly toward you pressing the switch lever upward. (Figure 1-7)

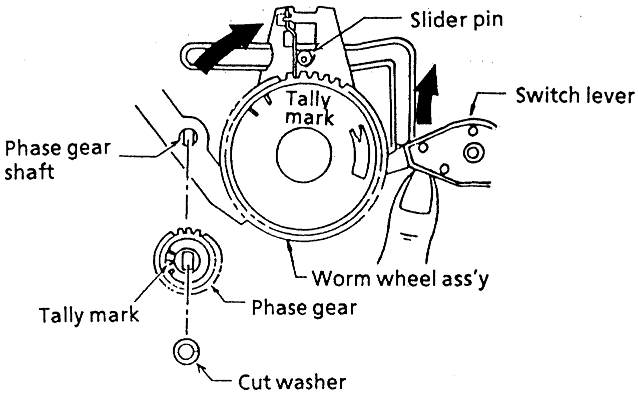
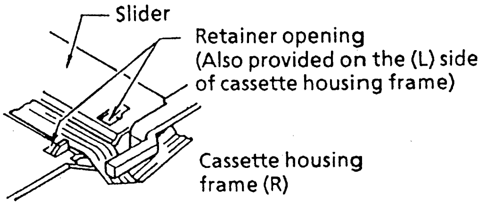

Slider pin
Switch lever
Tally mark
Phase gear shaft
Worm wheel ass'y
Phase gear
Tally mark
Cut washer

Figure 1-7.


Slider
Retainer opening
(Also provided on the (L) side of cassette housing frame)
Cassette housing frame (R)

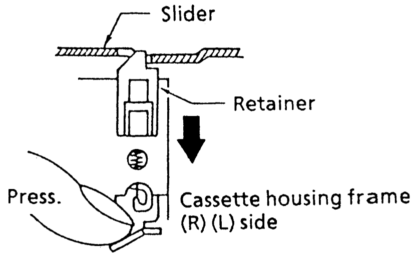

Slider
Retainer
Press.
Cassette housing frame (R) (L) side

Figure 1-8.

- **Reassembly**

1. Turn the phase gear clockwise until the slider comes to a halt in the cassette insertion direction. (See the Figure 1-9.)
2. Insert the set up worm wheel gear assembly into the cassette housing frame (R), matching the mark on the phase gear with the mark on the worm wheel gear. Detach the cut washer on the phase gear assembly and the phase gear for easier installation of worm wheel assembly.
   Note:
   Make sure that the slider pin is in the groove of the drive gear arm.

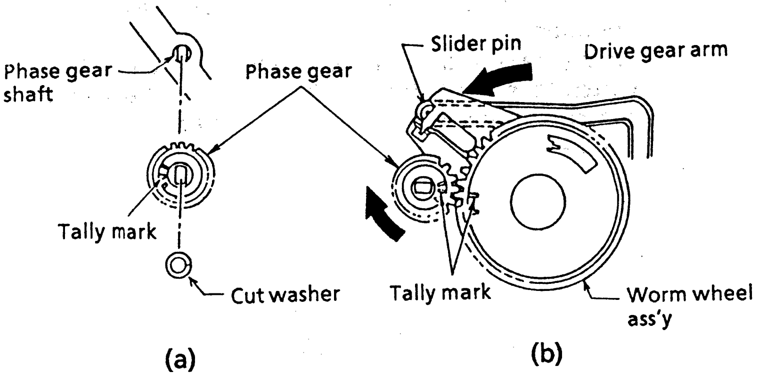

Phase gear shaft
Phase gear
Tally mark
Cut washer
(a)
Slider pin
Drive gear arm
Tally mark
Worm wheel ass'y
(b)

Figure 1-9.

3. Install the pulley and the cassette loading belt on the worm shaft assembly. Couple the clutch to the clutch lever. And mount them together in the cassette housing frame (R).
   Note:
   Keep in mind that the clutch switching lever should be in the correct position. The mechanism might malfunction if the lever is slightly out of position. (See page 12.)

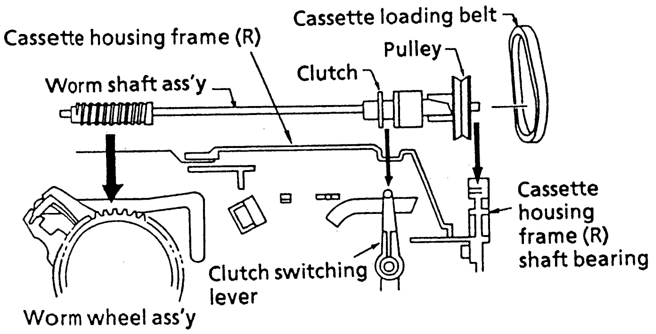

Cassette loading belt
Cassette housing frame (R)
Pulley
Worm shaft ass'y
Clutch
Cassette housing frame (R) shaft bearing
Clutch switching lever
Worm wheel ass'y

Figure 1-10.

4. Attach the worm bracket to the worm shaft assembly. Place them onto the boss on the cassette housing frame (R).
   Note:
   Insert ① before screwing into ② and ③.

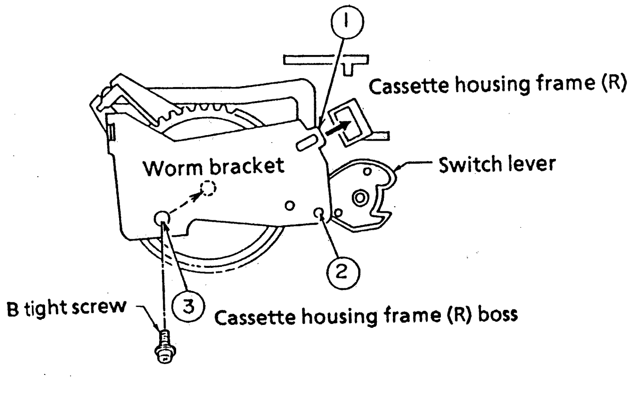

①
Cassette housing frame (R)
Worm bracket
Switch lever
②
B tight screw
③
Cassette housing frame (R) boss

Figure 1-11.

5. Tighten one B tight screw.
   Note: Do not overtighten the B tight screw (no more than 5.0 ± 0.5 kg.cm), because the lower threads of the screw hole at the resin-mode boss can be broken.
6. Place the start sensor PWB on the cassette housing frame (R).
   Note: Check that the switch connectors are in the cassette switch mounting hole.
7. Finally resolder the cassette switch connector to the start sensor PWB.

REASSEMBLY OF DRIVE GEAR

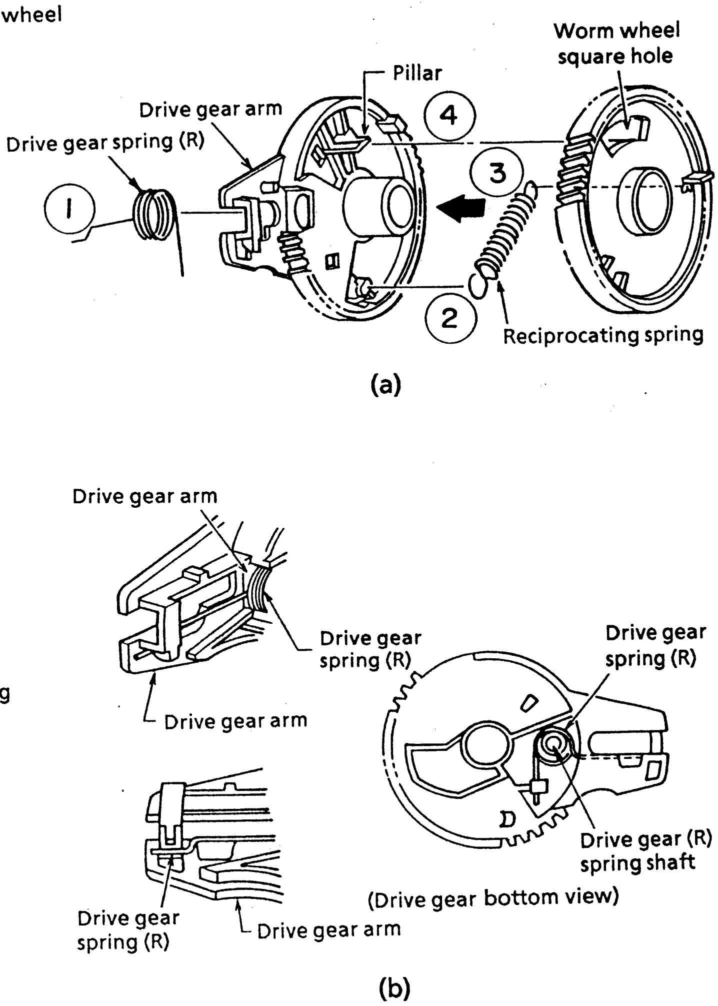

Worm wheel square hole
Pillar
Drive gear arm
④
Drive gear spring (R)
③
①
②
Reciprocating spring
(a)
Drive gear arm
Drive gear spring (R)
Drive gear arm
Drive gear spring (R)
Drive gear (R) spring shaft
(Drive gear bottom view)
Drive gear spring (R)
Drive gear arm
(b)

Figure 1-12.

1. Pass the tip of the drive gear spring (R) ① through the square hole of the drive gear (R) to hook the spring in position.
2. Hook one end ② of the reciprocating spring to the catch of the drive gear (R).
3. Hook the other end ③ of the reciprocating spring to the catch of the worm wheel.
4. Insert the pillar ④ of the drive gear (R) into the square hole of the worm wheel. Turn the worm wheel somewhat counterclockwise for insertion of the worm wheel to the drive gear (R), because the reciprocating spring is at work.

REPLACEMENT OF CASSETTE LOADING BELT

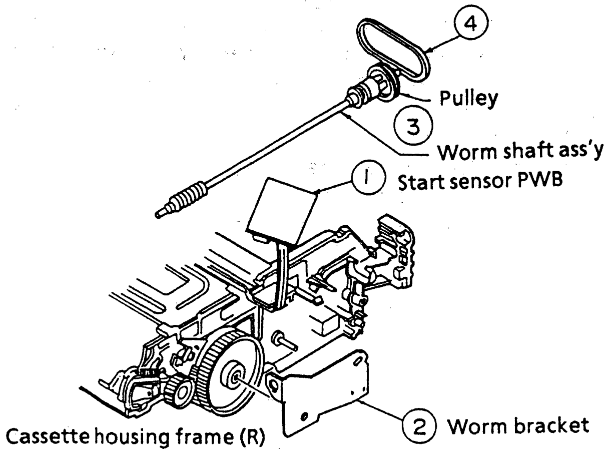

④
Pulley
③
Worm shaft ass'y
①
Start sensor PWB
Cassette housing frame (R)
②
Worm bracket

Figure 1-13.

1. Remove the start sensor PWB ① and worm bracket ② from the cassette housing frame (R).
2. Remove the worm shaft assembly ③.
3. Replace the cassette loading belt ④ with a new one.

Notes:

1. Do not overtighten the B tight screw which holds the worm bracket in position. The specified torque is 5.0 ± 0.5 kg · cm.
2. Make sure that the cassette loading belt is free from grease. If stained with grease, clean the belt with the cleaning liquid.
3. Perform checking of the clutch switch lever for proper action.

CHECKING THE CLUTCH SWITCH LEVER

- **Checking**

Place the mechanism in the cassette eject mode when removing and attaching the cassette housing from and to the mechanism chassis.

Make sure enough that each part in the cassette housing such as the clutch switch lever is in position. If not, it causes malfunction.

Note:

Figure 1-14 shows the position of each part in the cassette eject mode.

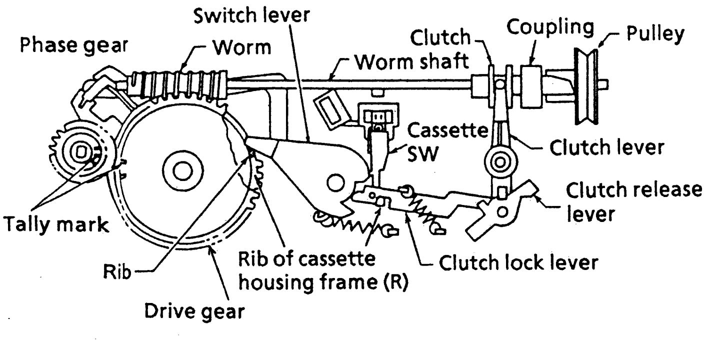
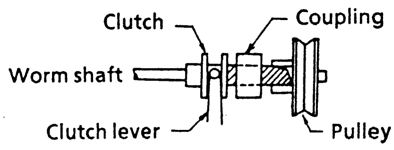

Switch lever
Phase gear
Worm
Clutch
Coupling
Pulley
Worm shaft
Cassette SW
Clutch lever
Clutch release lever
Tally mark
Rib
Rib of cassette housing frame (R)
Clutch lock lever
Drive gear

Figure 1-14.

1. First make sure that the tip of the switch lever is held at the rib of the drive gear (R).
2. Check that the rib of cassette housing frame (R) and the concavity of the clutch lock lever are engaged.
3. Finally be sure that the relationship between the clutch lever and the clutch, as well as between the clutch and the pulley, are correct as in the Figure 1-15.


Clutch
Coupling
Worm shaft
Clutch lever
Pulley

Check that the clutch is engaged with the pulley through the coupling.

Figure 1-15.

- **Resetting**

Take the following steps to reset the clutch if it is unlocked or if the switch lever and the clutch lock lever are unlocked.

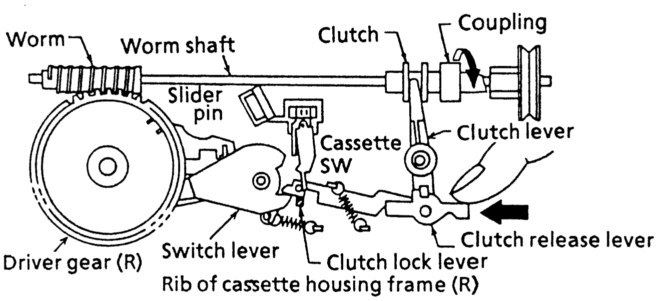

Worm
Worm shaft
Clutch
Coupling
Slider pin
Cassette SW
Clutch lever
Clutch release lever
Driver gear (R)
Switch lever
Clutch lock lever
Rib of cassette housing frame (R)

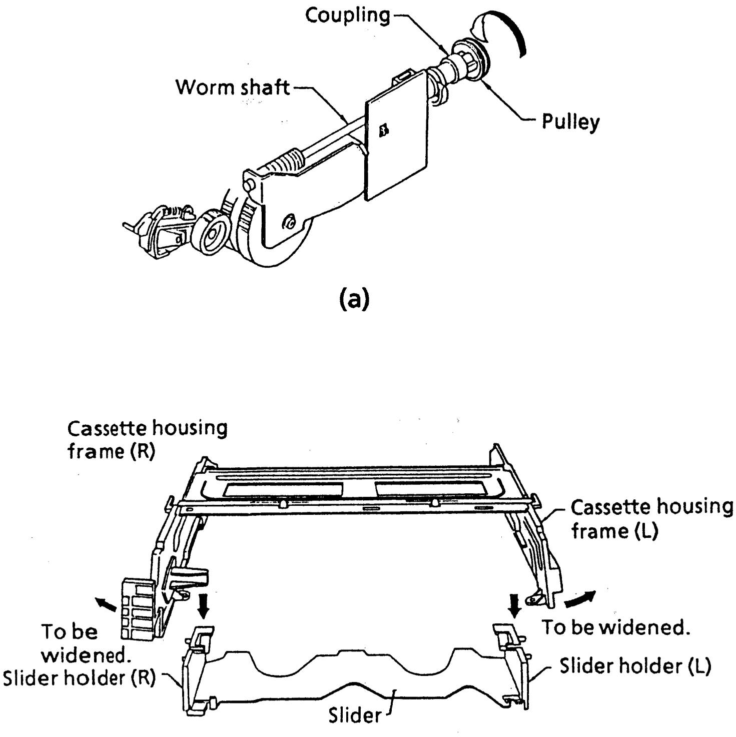
Figure 1-16.

1. Shift the slider by turning the coupling in the arrow direction (clockwise) until the slider pin is at the bottom of the slider groove as shown in the Figure 1-16. (The loading mode)
   Note: Note that the slider is equipped with a lock mechanism. Unlock the locks on cassette housing frames (L) and (R) side before shifting the slider.
2. When the position is set as shown in the Figure 1-16, push the clutch release lever in the direction of the arrow by hand until the clutch lock lever becomes tightly locked by the rib of cassette housing frame (R).
3. Then turn the coupling counterclockwise until the slider reaches the cassette insertion opening and the reciprocating spring is activated.
   Note: There is no need to unlock the slider when shifting the slider to the cassette insertion opening. Just keep shifting the slider.

REPLACEMENT OF LOCK RELEASE LEVER ASS'Y

- **Removal**

1. Place the slider in the cassette down position. (Turn the coupling on the worm shaft clockwise until the slider is in the cassette down position.)
   Note: Before shifting, unlock the slider.
2. Slightly widen the cassette housing frames (R) and (L) to unhook the slider holders (R) and (L) of the slider assembly off the grooves of the cassette housing frames.


Coupling
Worm shaft
Pulley
Cassette housing frame (R)
Cassette housing frame (L)
To be widened.
To be widened.
Slider holder (R)
Slider holder (L)
Slider

(a)

(b)

Figure 1-17.

3. Lift the slider holder (R) upward about 2mm off the slider by pressing two catches with a thin tip screw driver. Take care not to damage the catches.

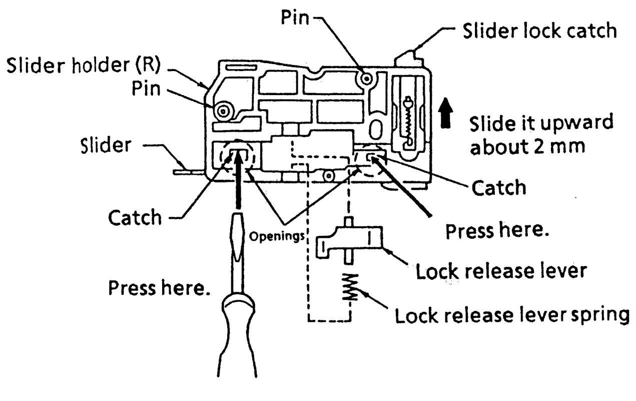

Pin
Slider lock catch
Slider holder (R)
Pin
Slide it upward about 2 mm
Slider
Catch
Catch
Press here.
Openings
Lock release lever
Press here.
Lock release lever spring

Figure 1-18.

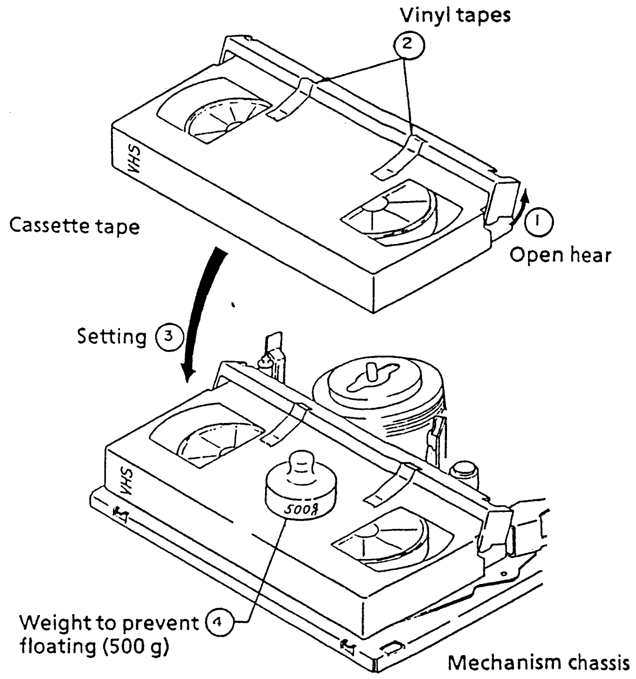
4. Remove the lock release lever from the slider holder (R)

- **Reassembly**

1. Follow the steps for removal in the reverse order. (See Figures 1-17 and 1-18.)
2. Attach the lock release lever to the slider holder (R).
3. Slide the slider holder (R) downward so that the two catches of the slider holder (R) fit the opening of the slider.
4. Slightly widen the cassette housing frames, and set the pins of slider holders (R) and (L) into the grooves of the cassette housing frames.
   Note: Check if the pins of the slider holders (R) and (L) fit the grooves of the cassette housing frames, and if the drive gear arm is sufficiently engaged with the slider holders.
5. Turn the coupling counterclockwise until the slider is at the cassette insertion opening.

TO RUN A TAPE WITHOUT THE CASSETTE HOUSING CONTROL ASSEMBLY

1. Plug in the power cord.
2. Turn on the power switch.
3. Open the lid ① of a cassette tape by hand.
4. Hold the lid with a pieces of vinyl tapes ②.
5. Set te cassette tape in the mechanism chassis.
6. Weight the cassette tape with a weight ④ to prevent float.
7. Perform running test.


Vinyl tapes ②
VHS
Cassette tape
① Open hear
Setting ③
VHS
500g
Weight to prevent ④ floating (500 g)
Mechanism chassis

Note: The weight should not be more than 500 g.

Figure 1-19.

REPLACEMENT AND HEIGHT CHECKING AND ADJUSTMENT OF REEL DISKS

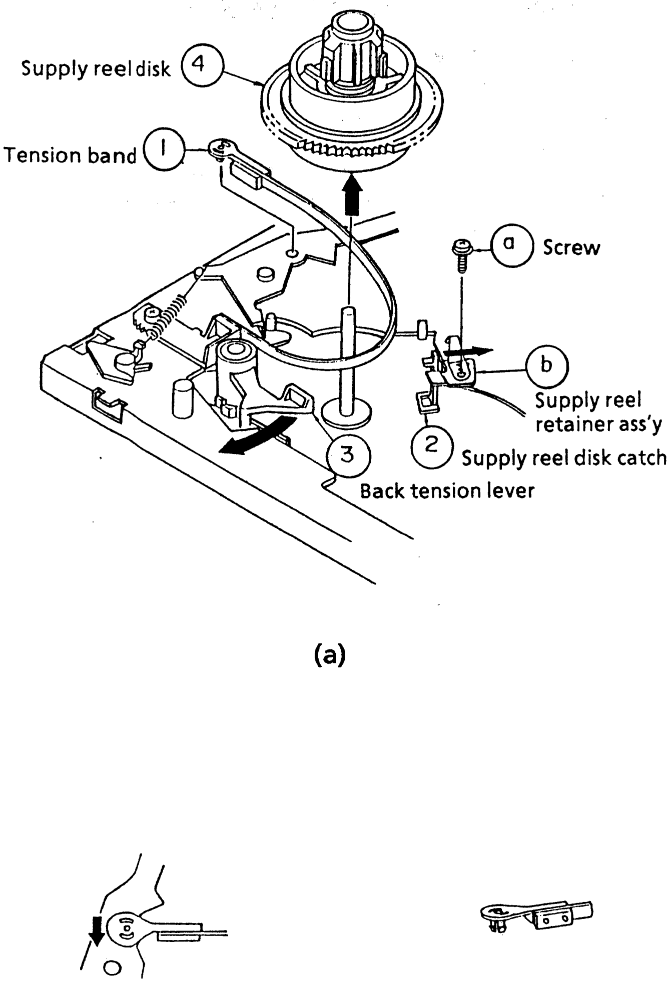
1. Remove the cassette housing control assembly.
2. Set the mechanism in the playback mode with no cassette tape in place. Unplug the power cord.
3. Set the idler gear in the center (neutral).

- **Removal (Supply reel disk)**

1. Remove the tension band ①. (Take care not to deform it.)
2. Unscrew the screw ⓐ and remove the supply reel retainer assembly ⓑ.
3. Release the supply reel disk catch and back tension lever ③.
4. Pull the supply reel disk upward.

Notes :

1. Take care not to deform the tension band.
2. Check and adjust the tension pole position. (See page 19.)
3. Be careful not to damage the gear and the idler gear on the supply reel disk.
4. Press the tension band in the direction of the arrow for removal (See Figure 1-20(b)).


Supply reel disk 4
Tension band 1
a Screw
b
Supply reel retainer ass'y
3
2 Supply reel disk catch
Back tension lever

(a)

(b)

Figure 1-20.

- **Removal (Take-up reel disk)**

1. Unscrew the screw ⓒ and remove the take-up reel retainer.
2. Release the take-up reel disk catch ①.
3. Pull the take-up reel disk ② upward.

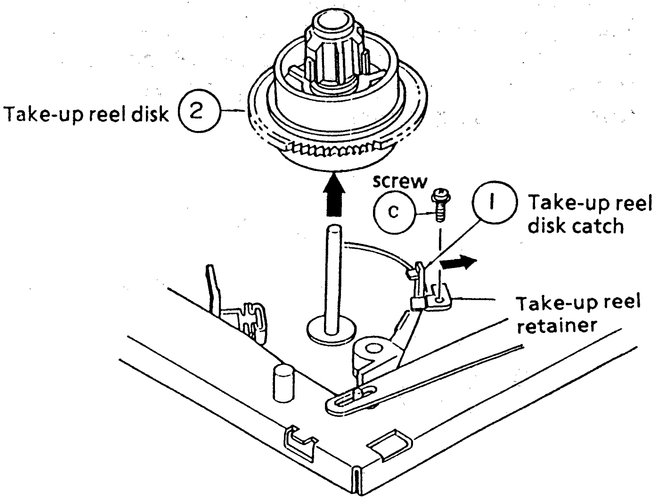

Take-up reel disk 2
screw
c
1 Take-up reel disk catch
Take-up reel retainer

Figure 1-21.

- **Reassembly (Supply reel disk)**

1. Clean the reel disk shaft ① and apply oil to it.
2. Release the supply reel disk catch ② and back tension lever ③.
3. Install a new supply reel disk ④ onto the shaft.
4. Replace the tension band ⑤ around the supply reel disk, and insert it to the hole of the tension arm.
5. Replace the supply reel retainer assembly ⓑ in place, and tighten up the screw ⓐ.

Notes :

1. Take enough care not to deform the tension band during installation of the supply reel disk.
2. Be careful not to damage the supply reel disk gear, back tension lever, supply reel disk catch, or the like with tools.

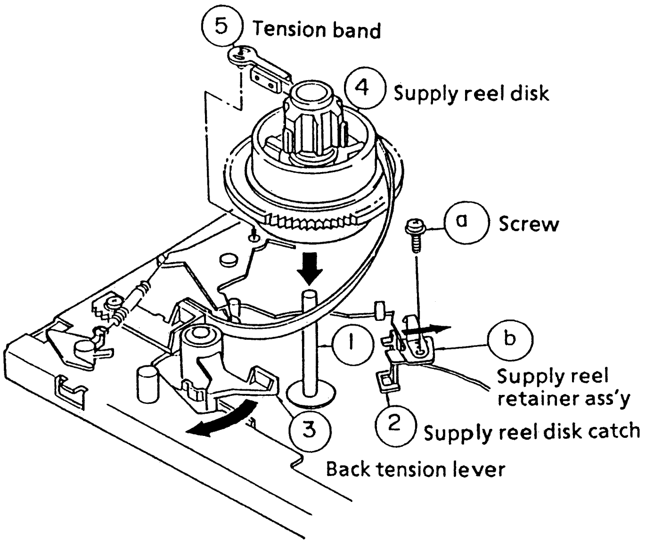

5 Tension band
4 Supply reel disk
a Screw
1
b
Supply reel retainer ass'y
3
2 Supply reel disk catch
Back tension lever

Figure 1-22.

- **Reassembly (Take-up reel disk)**

1. Clean the reel disk shaft ① and apply oil to it.
2. Release the take-up reel disk catch ② and video search brake lever ③.
3. Install a new take-up reel disk ④ onto the shaft.
4. Replace the take-up reel retainer ⑤ in position and tighten up the screw ©.

Note:
Take care not to damage the video search brake lever.

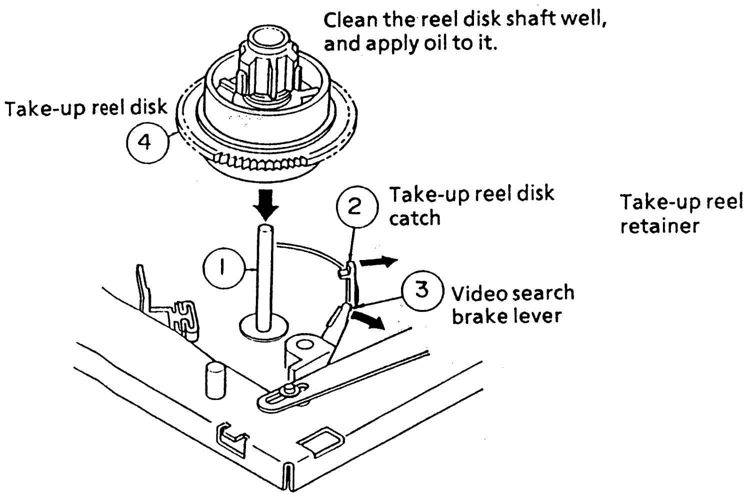

Clean the reel disk shaft well, and apply oil to it.
Take-up reel disk
4
2
Take-up reel disk catch
1
3
Video search brake lever
Take-up reel retainer

Figure 1-23.

* After reassembly, check the video search rewind back tension (See page 18), and check the brake torque (See page 20).

- **Height checking and adjustment**

Note:
Place the master plane onto the mechanism unit, taking care not to hit the drum (See Figure 1-24)

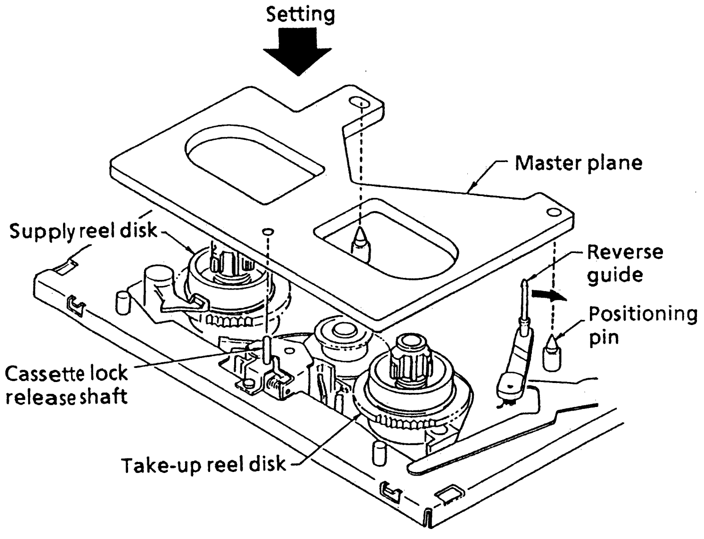

Setting
Master plane
Supply reel disk
Reverse guide
Positioning pin
Cassette lock release shaft
Take-up reel disk

Figure 1-24.

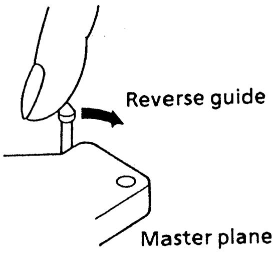
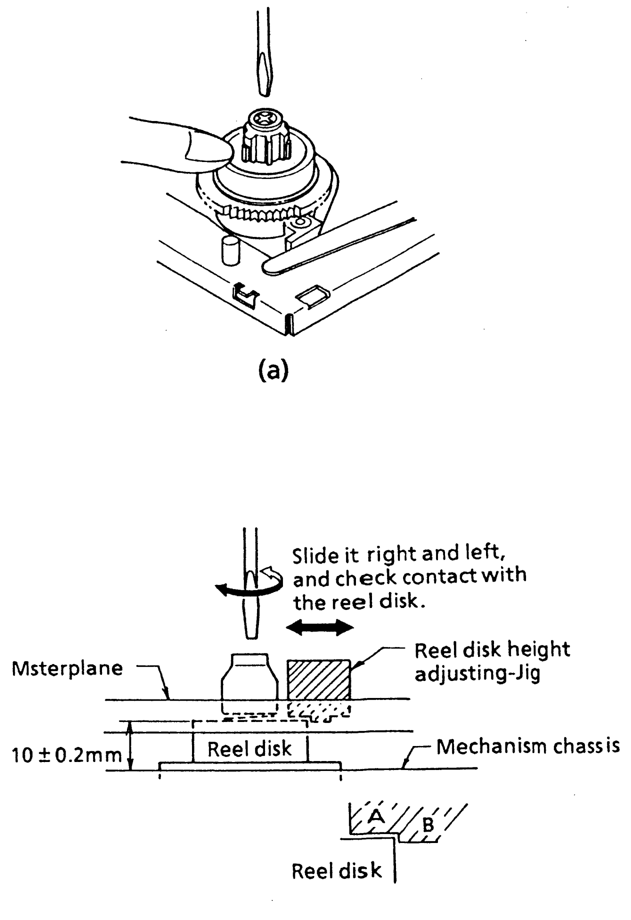

Reverse guide
Master plane

Figure 1-25.

1. For height adjustment, press the reel disk with a finger, and turn it right and left with a screwdriver (See Figure 1-26 (a)).
2. Check that the reel disk is lower than part A but higher than part B. If the height is not correct, adjust the height adjusting screw (See Figure 1-26 (b)).

Note:
Whenever replacing the reel disk, perform the height checking and adjustment.


Slide it right and left, and check contact with the reel disk.
Msterplane
Reel disk height adjusting-Jig
10 ± 0.2mm
Reel disk
Mechanism chassis
A
B
Reel disk

(a)

(b)

Figure 1-26.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN FAST FORWARD MODE

- Remove the cassette housing control assembly.
- **Setting**

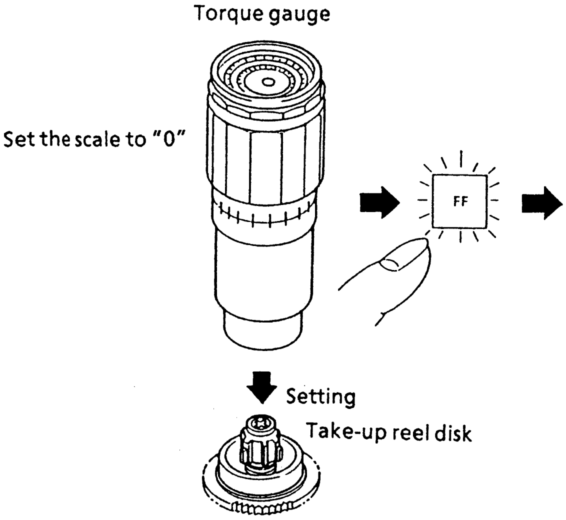

Torque gauge
Set the scale to "0"
FF
Setting
Take-up reel disk

Figure 1-27.

- **Checking**

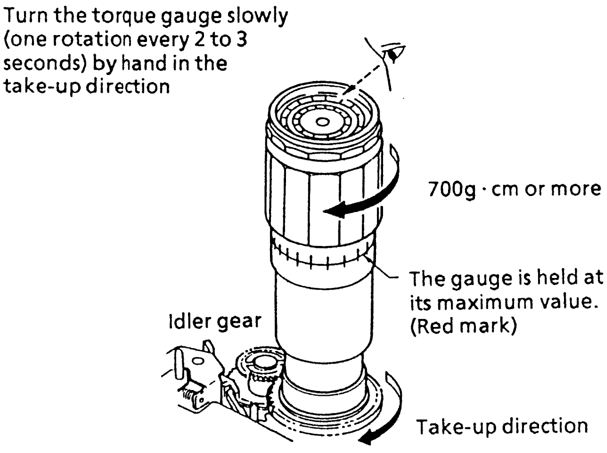

Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by hand in the take-up direction
700g · cm or more
The gauge is held at its maximum value. (Red mark)
Idler gear
Take-up direction

Figure 1-28.

- **Adjustment**

1. If the take-up torque is outside the range, clean the capstan D.D. motor pulley, reel belt and reel pulley with cleaning liquid, than recheck the torque.
2. If the take-up torque is still out of range, replace the reel belt.

Notes:

1. Hold down the torque gauge so that it may not fly off.
2. When checking the take-up torque, do not keep the reel disk locked for a longer time.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN REWIND MODE

- Remove the cassette housing control assembly.
- **Setting**

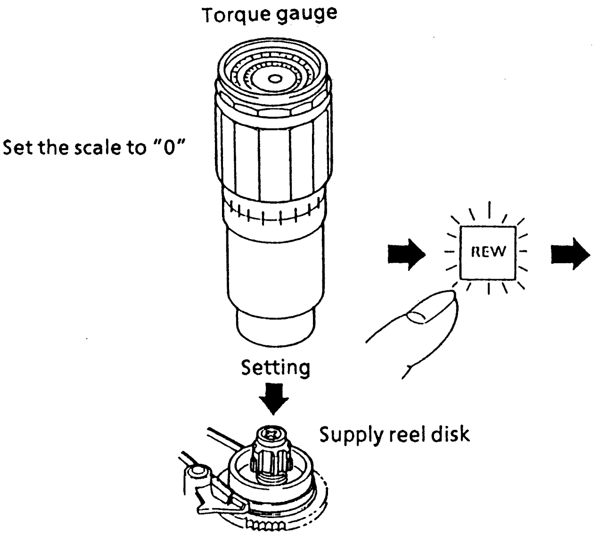

Torque gauge
Set the scale to "0"
REW
Setting
Supply reel disk

Figure 1-29.

- **Checking**

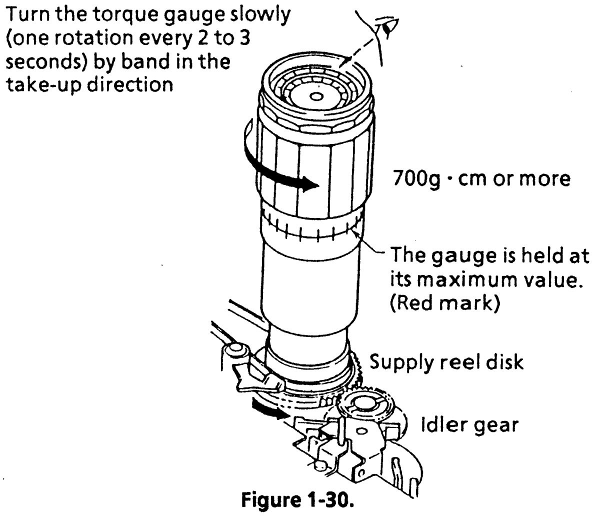

Turn the torque gauge slowly (one rotation every 2 to 3 seconds) by band in the take-up direction
700g · cm or more
The gauge is held at its maximum value. (Red mark)
Supply reel disk
Idler gear

Figure 1-30.

- **Adjustment**

1. If the take-up torque is outside the range, clean the capstan D.D. motor pulley, reel belt and reel pulley with cleaning liquid, then recheck the torque.
2. If the take-up torque is still out of range, replace the reel belt.

Notes:

1. Hold down the torque gauge so that it may not fly off.
2. When checking the take-up torque, do not keep the reel disk locked for a longer time.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN PLAYBACK MODE

1. Remove the cassette housing control assembly.
2. Open the lid of the cassette torque meter, and hold it with two pieces of vinyl tapes.

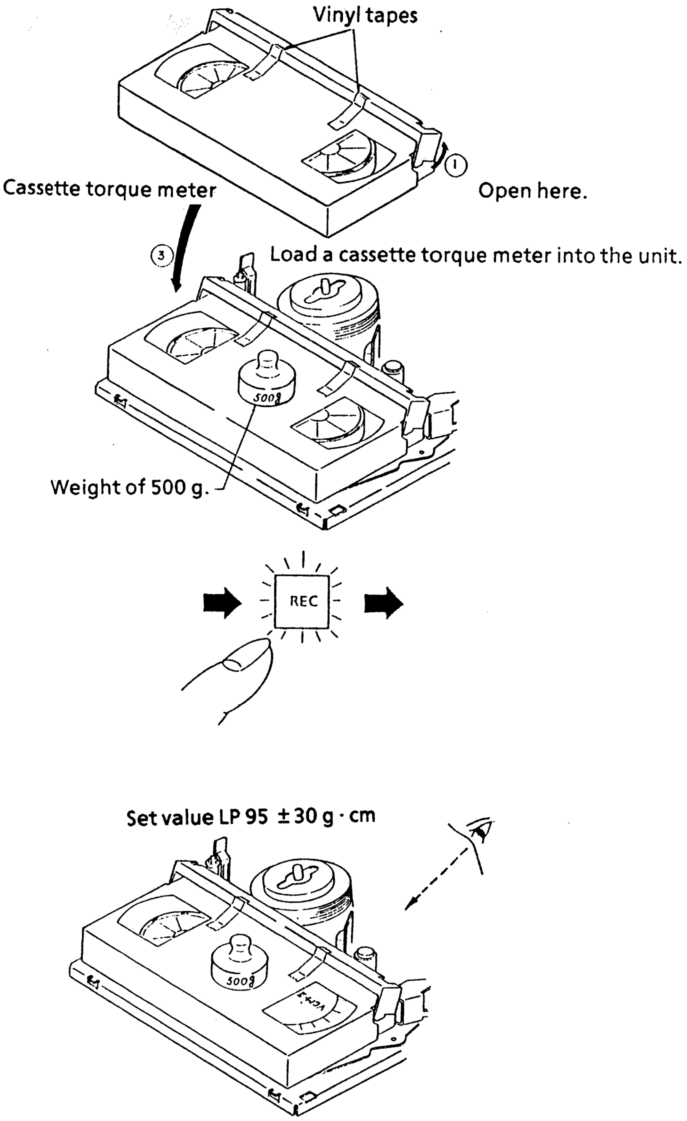

Vinyl tapes
①
Cassette torque meter
Open here.
③
Load a cassette torque meter into the unit.
500g
Weight of 500 g.
REC
Set value LP 95 ±30 g · cm
500g

Figure 1-31.

- **Checking**

1. Check that the torque is in the range of 95 ± 30 g.cm.
2. The torque fluctuates due to the rotational deviation of the reel drive unit. Use the center of the fluctuation as the value.
3. Place the unit in the LP record mode, and check that the take-up torque is within the range.

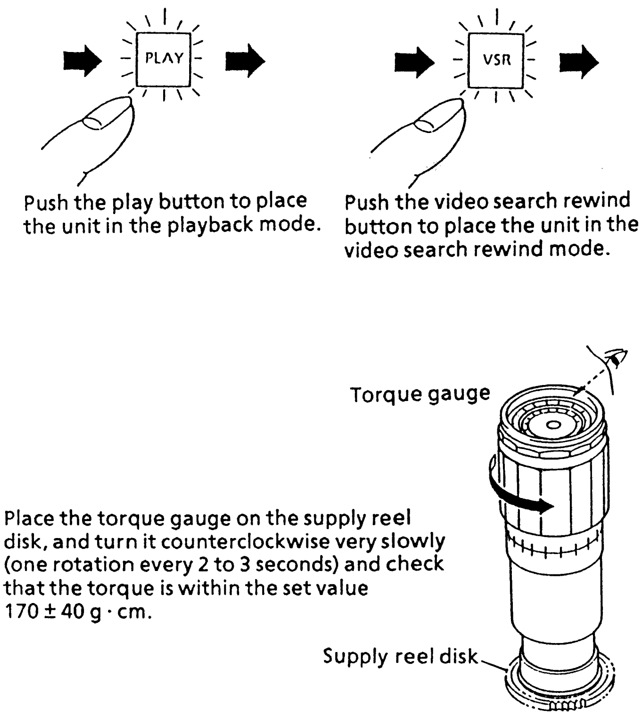
- **Adjustment**

If the take-up torque in the playback mode is outside the range, replace the take-up reel disk.

Note:
Weight the cassette torque meter to prevent floating.

CHECKING AND ADJUSTMENT OF TAKE-UP TORQUE IN VIDEO SEARCH REWIND MODE

- Remove the cassette housing control assembly.
- Checking


PLAY
VSR
Torque gauge
Supply reel disk

Push the play button to place the unit in the playback mode.

Push the video search rewind button to place the unit in the video search rewind mode.

Place the torque gauge on the supply reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 170 ± 40 g · cm.

Figure 1-32.

Note:
Set the torque gauge securely on the supply reel disk. If it is not secure, the measurement will be incorrect.

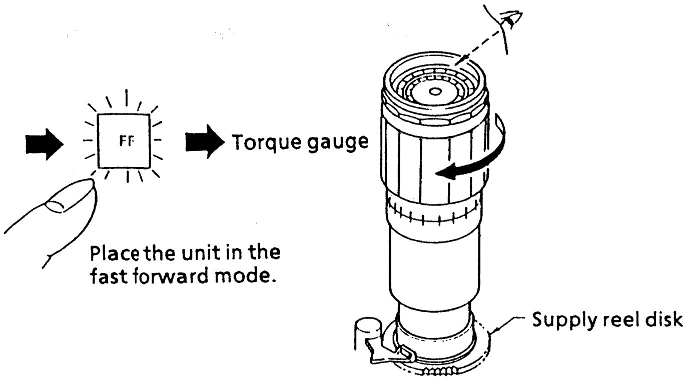
- **Adjustment**

If the take-up torque in video search rewind mode is outside the range, replace the supply reel disk.

Note :
The torque fluctuates due to the rotational deviation of the supply reel disk. Use the center of the fluctuation at the value.

CHECKING THE FAST FORWARD BACK TENSION

- Remove the cassette housing control assembly.
- **Checking**


FF
Torque gauge
Place the unit in the fast forward mode.
Supply reel disk

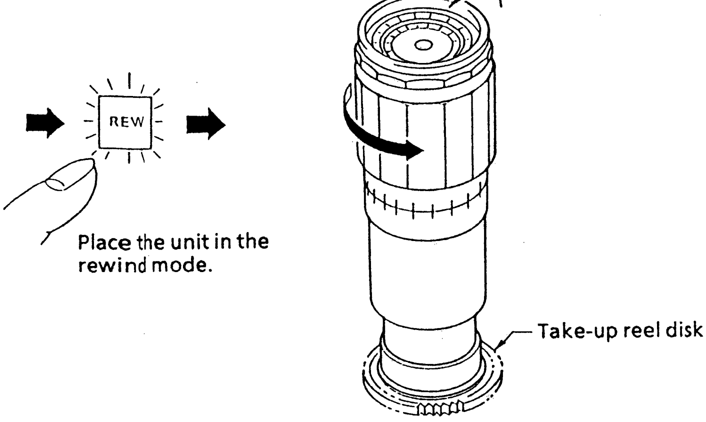
Place the torque gauge on the supply reel disk, and turn it clockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15±5 g · cm

Figure 1-33.

Note:
Set the torque gauge securely on the supply reel disk. If the torque gauge is not securely set on the reel disk, measurement will be incorrect.

CHECKING THE REWIND BACK TENSION

- Remove the cassette housing control assembly.
- Checking


REW
Place the unit in the rewind mode.
Take-up reel disk

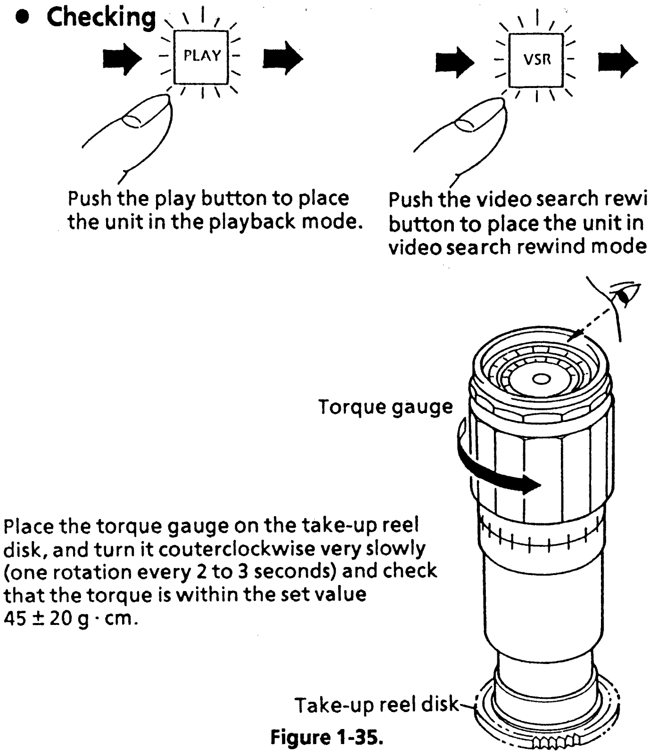
Place the torque gauge on the take-up reel disk, and turn it counterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within 15 ± 5 g · cm.

Figure 1-34.

Note:
Set the torque gauge securely on the take-up reeldisk. If it is not secure, the measurement will be incorrect.

CHECKING THE VIDEO SEARCH REWIND BACK TENSION

- Remove the cassette housing control assembly.
- **Checking**


PLAY
VSR
Torque gauge
Take-up reel disk

Push the play button to place the unit in the playback mode.

Push the video search rewind button to place the unit in the video search rewind mode.

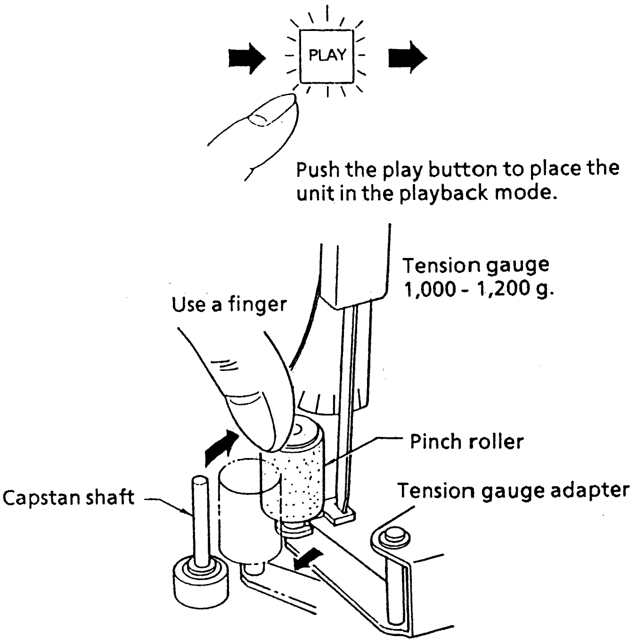
Place the torque gauge on the take-up reel disk, and turn it couterclockwise very slowly (one rotation every 2 to 3 seconds) and check that the torque is within the set value 45 ± 20 g · cm.

Figure 1-35.

Note:
Set the torque gauge securely on the take-up reeldisk. If it is not secure, the measurement will be incorrect.

CHECKING THE PINCH ROLLER PRESSURE

- Remove the cassette housing control assembly.


PLAY
Use a finger
Tension gauge 1,000 - 1,200 g.
Pinch roller
Capstan shaft
Tension gauge adapter

Push the play button to place the unit in the playback mode.

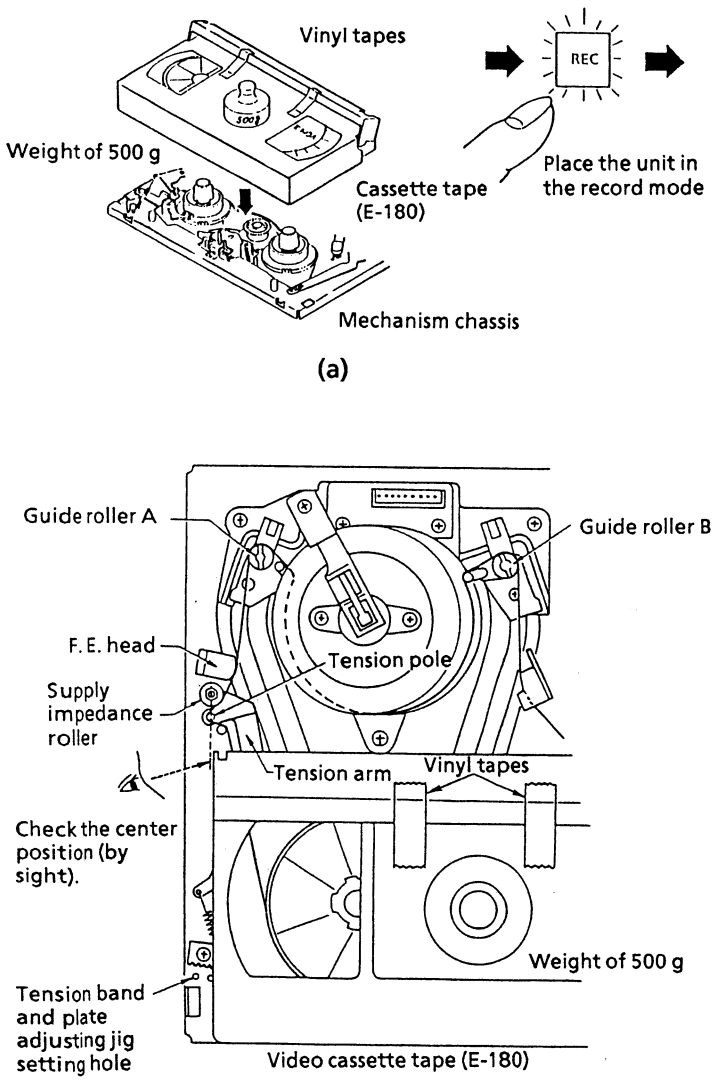
Figure 1-36.

1. Detach the pinch roller from the capstan shaft.
2. Set the tension gauge by hooking the tension gauge adapter onto the pinch roller shaft.
3. Gradually release the pressure to allow the pinch roller to touch the capstan shaft. When the pinch roller just touches the capstan shaft, read the indication on the gauge.
4. Check that the reading of the tension gauge is in the range of 1000 to 1200 g.

CHECKING AND ADJUSTMENT OF TENSION POLE POSITION

- Remove the cassette housing control assembly.

- **Setting**


Vinyl tapes
REC
Weight of 500 g
Cassette tape (E-180)
Place the unit in the record mode
Mechanism chassis
Guide roller A
Guide roller B
F. E. head
Tension pole
Supply impedance roller
Tension arm
Vinyl tapes
Check the center position (by sight).
Weight of 500 g
Tension band and plate adjusting jig setting hole
Video cassette tape (E-180)

(a)

(b)

Figure 1-37.

- **Checking**

1. The guide rollers (A, B) operate to bring the tape outside the cassette tape and simultaneously the tension pole moves to the left, loading the tape. At that time (loading completed), check the position of the tension pole.
2. At the beginning of the tape (E-180), check that the tension pole's left side is aligned with the supply impedance roller's center by sight.
3. Check that the end of the tape is neither curled against the flange of the supply impedance roller nor over it.
4. During the video search rewind mode with no cassette tape in place, check that the supply reel disk is free from the tension band.

- Position adjustment (record mode)

When the tension pole is at the right of the supply impedance roller's center:
Untighten the tightening screw, and shift the tension band adjustment bracket in the direction of the arrow using a tension band and plate adjusting jig until it is in the set value range (center). Then secure it with the tightening screw.

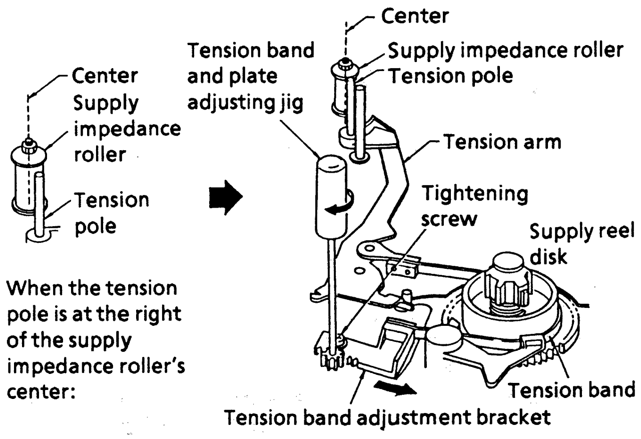

Center
Supply impedance roller
Tension pole
When the tension pole is at the right of the supply impedance roller's center:
Center
Tension band and plate adjusting jig
Supply impedance roller
Tension pole
Tension arm
Tightening screw
Supply reel disk
Tension band
Tension band adjustment bracket

Figure 1-38.

- Position adjustment (record mode)

When the tension pole is at the left of the supply impedance roller's center:
Untighten the tightening screw, and shift the tension band adjustment bracket in the direction of the arrow using a tension band and plate adjusting jig until it is in the set value range (center). Then secure it with the tightening screw.

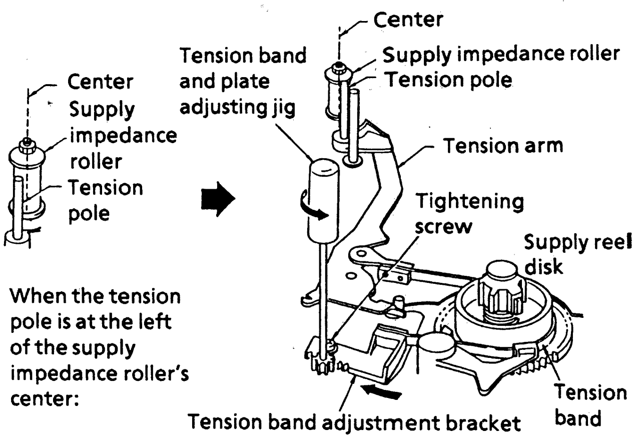

Center
Supply impedance roller
Tension pole
When the tension pole is at the left of the supply impedance roller's center:
Center
Tension band and plate adjusting jig
Supply impedance roller
Tension pole
Tension arm
Tightening screw
Supply reel disk
Tension band
Tension band adjustment bracket

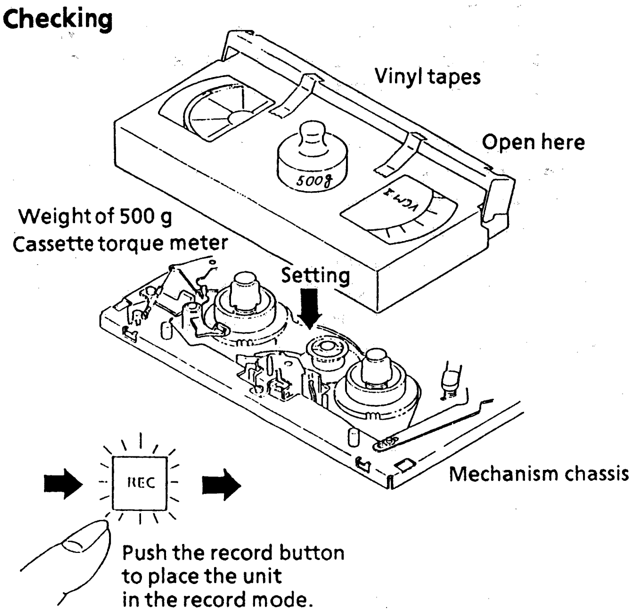
Figure 1-39.

CHECKING AND ADJUSTMENT OF RECORD / PLAYBACK BACK TENSION

A. When using a cassette torque meter:

- Remove the cassette housing control assembly.

- **Checking**


Vinyl tapes
Open here
500g
Weight of 500 g
Cassette torque meter
Setting
REC
Mechanism chassis

Push the record button to place the unit in the record mode.

Figure 1-40.

1. Put a cassette torque meter into the unit.
2. Push the record button to place the unit in the record mode.
3. Check that the back tension indicated by the gauge is within the set range 31 to 36 g.cm.

Notes :

1. Make sure that the video cassette tape is over the retaining guide.
2. Make sure that the tape is not slack nor damaged at either end.

- **Adjustment**

1. If the reading of the cassette torque meter is less than specified, move the tip of the tension spring hook plate toward the hole A.
2. If the reading of the cassette torque meter is more than specified, move the tip of the tension spring hook plate toward the hole B.

* Put a thin screw driver (–) in the shaft hole, lean it toward you, and turn it for easier shift of the tension spring hook plate in the direction of A or B.

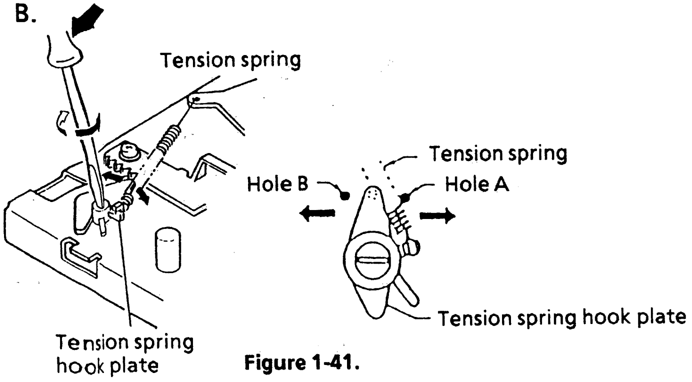
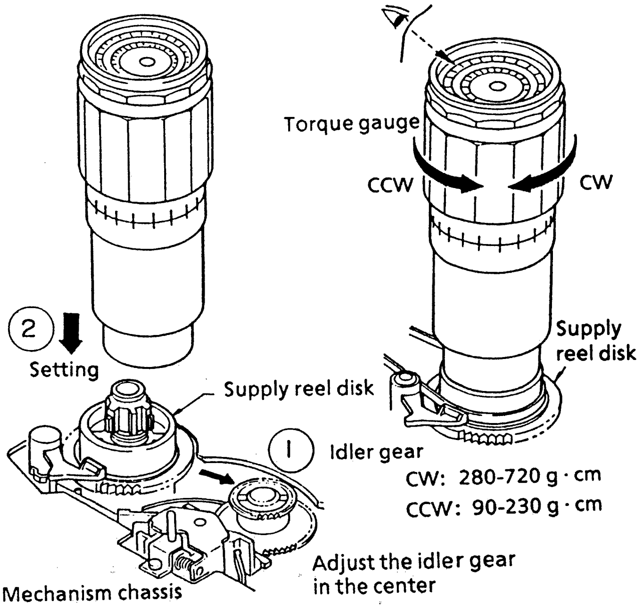

Tension spring
Tension spring
Hole B
Hole A
Tension spring hook plate
Tension spring hook plate

Figure 1-41.

Figure 1-42. Not used.

CHECKING THE BRAKE TORQUE

- **Checking the brake torque at the supply side**


Torque gauge
CCW
CW
② Setting
Supply reel disk
Supply reel disk
① Idler gear
Mechanism chassis

CW: 280-720 g · cm
CCW: 90-230 g · cm

Adjust the idler gear in the center

Figure 1-43.

1. Remove the cassette housing control assembly.
2. Place the mechanism in the stop mode by unplugging the power cord in the fast forward or rewind mode.
3. Slowly rotate the torque gauge in the clockwise (CW) direction and counterclockwise (CCW) direction of the supply brake so that the reel disk and the indicator of the torque gauge rotate at an equal rate. Check that the values are within the range of CW direction = 280 to 720 g. cm, CCW direction = 90 to 230 g.cm, and that the brake torque in the CW direction is at least twice as high as that in the CCW direction.

- **Checking the brake torque at the take-up side**

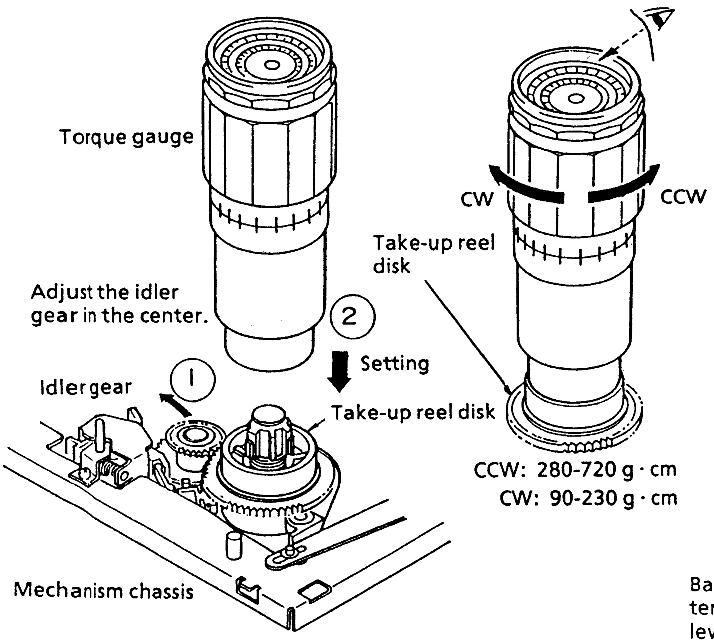

Torque gauge
CW
CCW
Take-up reel disk
Adjust the idler gear in the center.
②
Setting
Idler gear
①
Take-up reel disk
CCW: 280-720 g · cm
CW: 90-230 g · cm
Mechanism chassis

Figure 1-44.

1. Remove the cassette housing control assembly.
2. Slowly rotate the torque gauge in the clockwise (CW) direction and counterclockwise (CCW) direction of the take-up brake so that the reel disk and the indicator of the torque gauge rotate at an equal rate. Check that the values are within the range of CCW direction = 280 to 720 g. cm, CW direction = 90 to 230 g.cm, and that the brake torque in the CCW direction is at least twice as high as that in the CW direction.

- **Adjustment of the brake torque at the supply side and the take-up side**

1. If the supply or take-up brake torque is outside the range, clean the supply or take-up reel disk break lever felt, then recheck the torque.
2. If the supply or take-up brake torque is still outside the range, replace the main brake or the main brake spring.

REPLACEMENT OF MAIN BRAKE

1. Remove the reel belt and the reel block FFC. (Full Flat Cable)
2. Remove the cut washer ① off the brake shifter.
3. Unscrew the four screws ② and remove the take-up reel disk catch holder.
4. Remove the reel block assembly Ⓐ downward.
5. Remove the cut washer ③ first and then the reel pulley.
6. Unscrew the two screws ④ and detach the idler assembly.
7. Unhook the back tension lever spring ⑤ and remove the back tension lever ⑥. (Undo the hook under the reel chassis.)
8. Open the shifter latch ⑦ and remove the brake shifter assembly ⑧.
9. Release the reel disk catches ⑬ and then remove the left and right reel disk assemblies ⑨ and ⑩.
10. Finally remove the main brake levers ⑪ and the main brake spring ⑫.

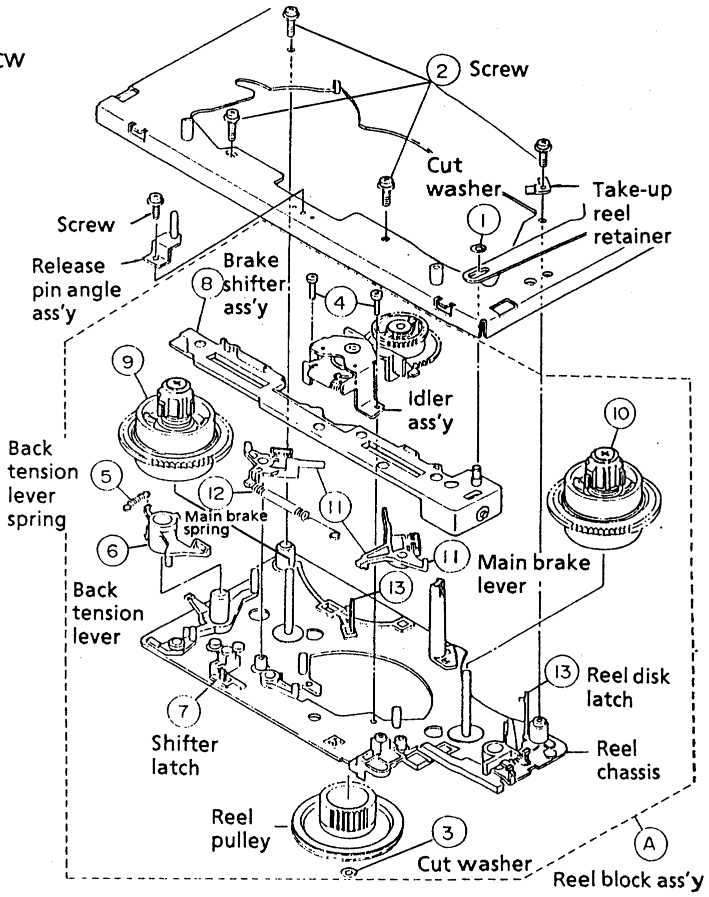

② Screw
Cut washer
①
Take-up reel retainer
Screw
Release pin angle ass'y
⑧ Brake shifter ass'y
④
⑨
Idler ass'y
⑩
Back tension lever spring
⑤
⑫
Main brake spring
⑪
⑥
⑪ Main brake lever
Back tension lever
⑬
⑬ Reel disk latch
⑦
Shifter latch
Reel chassis
Reel pulley
③
Cut washer
Ⓐ
Reel block ass'y

Figure 1-45.

Note :
When the main brake is replaced, perform the height checking and adjustment (See page 14), and the brake torque checking (See page 20).

REPLACEMENT OF A/C (Audio/Control) HEAD

1. Remove the cassette housing control assembly.
2. Place the unit in the unloading mode, and unplug the power cord.

- **Removal**

1. Loosen the tilt adjusting screw ①.
2. Remove the azimuth adjusting screw ②.
3. Remove the A/C head screw ③.
4. Unsolder the A/C head PWB soldered to the A/C head assembly.

Note :

1. After replacement, be sure to perform the adjustment of the tape drive train (See page 24). Under any circumstances, avoid touching the head.
2. Take care that the azimuth spring does not fly off when removing the A/C head screw.

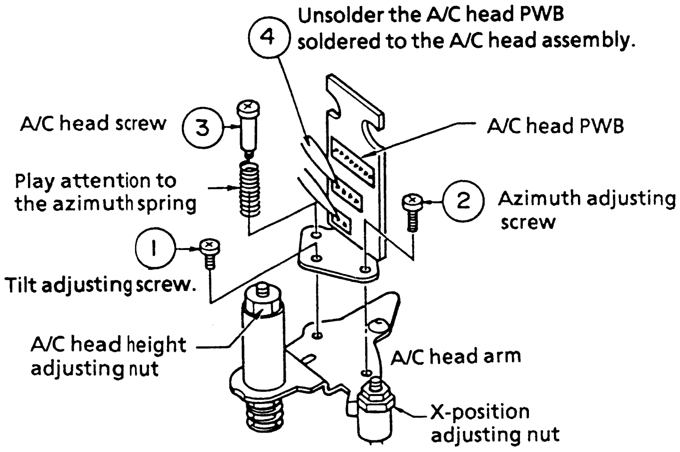

4
Unsolder the A/C head PWB soldered to the A/C head assembly.
A/C head screw
3
A/C head PWB
Play attention to the azimuth spring
2
Azimuth adjusting screw
1
Tilt adjusting screw.
A/C head height adjusting nut
A/C head arm
X-position adjusting nut

Figure 1-46.

- **Replacement**

1. Solder the removed A/C head PWB onto a new A/C head assembly.
2. The A/C head assembly is attached so that the A/C head arm and A/C head plate are roughly parallel to each other.

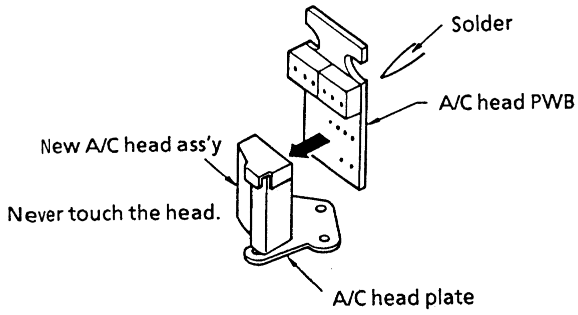

Solder
A/C head PWB
New A/C head ass'y
Never touch the head.
A/C head plate

Figure 1-47.

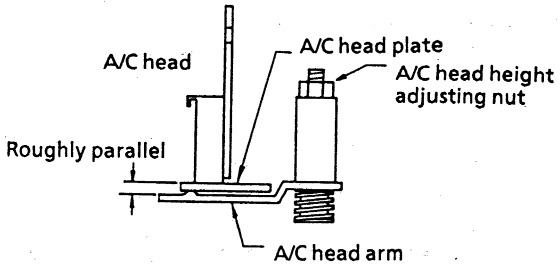
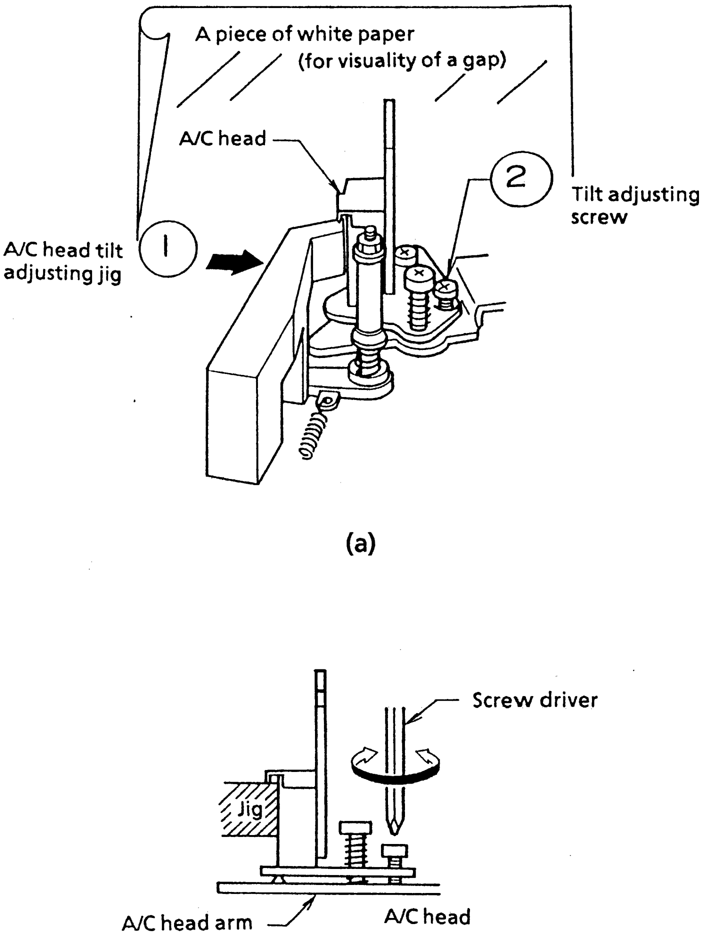

A/C head
A/C head plate
A/C head height adjusting nut
Roughly parallel
A/C head arm

Figure 1-48.

- **Adjustment**

[A/C head tilt angle]

1. Set the mechanism to the loading mode.
2. Place the A/C head tilt adjusting jig ①.
3. Slowly turn the tilt adjusting screw ② with a screw driver until there is no gap between the jig and the A/C head.

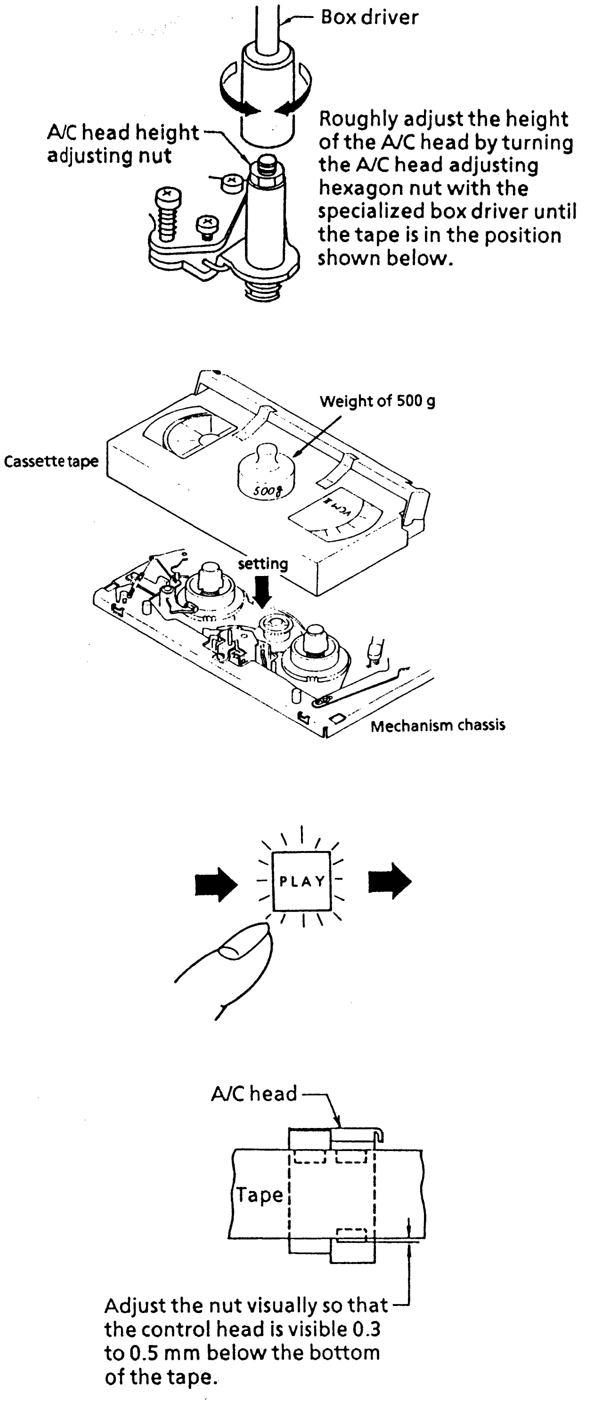

A piece of white paper
(for visuality of a gap)
A/C head
2
Tilt adjusting screw
A/C head tilt adjusting jig
1
Screw driver
Jig
A/C head arm
A/C head

(a)

(b)

Figure 1-49.

[A/C head height rough adjustment]


Box driver
A/C head height adjusting nut
Weight of 500 g
Cassette tape
500g
setting
Mechanism chassis
PLAY
A/C head
Tape

Roughly adjust the height of the A/C head by turning the A/C head adjusting hexagon nut with the specialized box driver until the tape is in the position shown below.

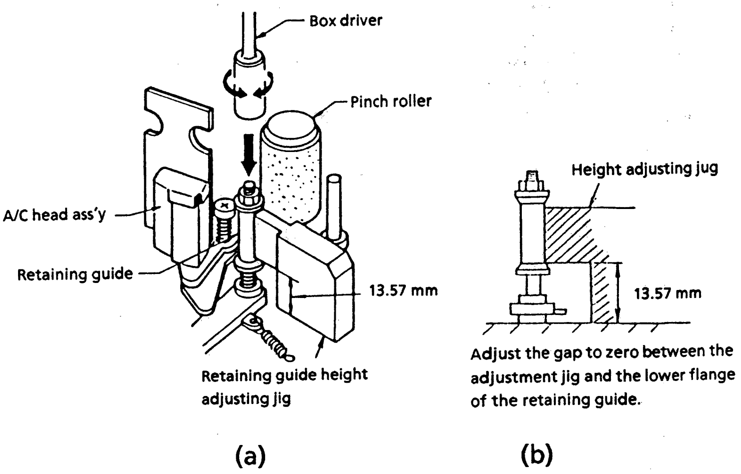
Adjust the nut visually so that the control head is visible 0.3 to 0.5 mm below the bottom of the tape.

Figure 1-50.

HEIGHT ADJUSTMENT OF RETAINING GUIDE AND REVERSE GUIDE

Note:
Before the rough adjustment of the tape drive train, check that the retaining guide height is within the value in Figure 1-51 by using the special jigs.

[Height adjustment of retaining guide]

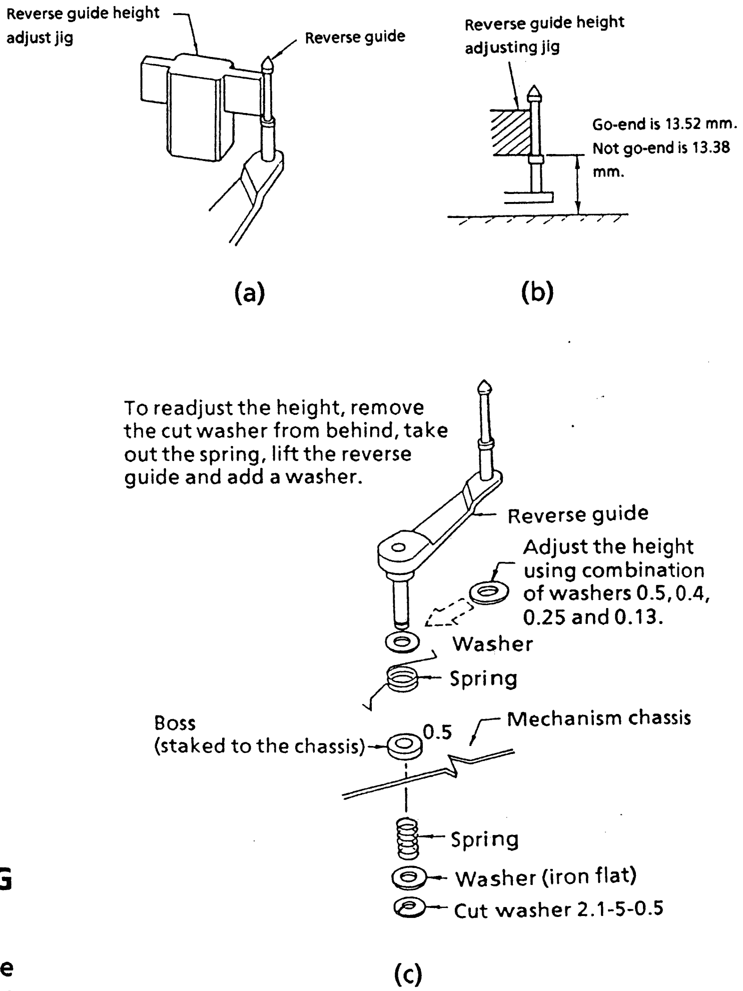

Box driver
Pinch roller
A/C head ass'y
Retaining guide
13.57 mm
Retaining guide height adjusting jig
Height adjusting jug
13.57 mm

Adjust the gap to zero between the adjustment jig and the lower flange of the retaining guide.

(a) (b)

Figure 1-51.

[Height adjustment of reverse guide]


Reverse guide height adjust jig
Reverse guide
Reverse guide height adjusting jig
Reverse guide
Washer
Spring
Boss (staked to the chassis)
0.5
Mechanism chassis
Spring
Washer (iron flat)
Cut washer 2.1-5-0.5

Go-end is 13.52 mm. Not go-end is 13.38 mm.

(a) (b)

To readjust the height, remove the cut washer from behind, take out the spring, lift the reverse guide and add a washer.

Adjust the height using combination of washers 0.5, 0.4, 0.25 and 0.13.

(c)

Figure 1-52.

ADJUSTMENT OF TAPE DRIVE TRAIN

1. Remove the cassette housing control assembly.
2. Check and adjust the position of the tension pole. (See page 19.)
3. Check and adjust the video search rewind back tension. (See page 18.)
4. Set the tilt angle of the A/C head. (See page 22.)
5. Rough adjustment of tape drive train.
   a) Connect the oscilloscope to the test point for PB CHROMA envelope output (TP501). Set the synchronism of the oscilloscope to EXT. The PB CHROMA signal is to be triggered by the head switching pulse (TP502).
   b) Loosen the setscrew at the lower part of the guide roller, and adjust it with an adjusting screw driver (JIGDRIVERH-4) so that the guide roller turns smoothly. (Do not overloosen the setscrew, which causes insecurity of the guide roller.) (See Figure 1-53.)
   c) Set the alignment tape (monoscope pattern) on the reel disk, and place the unit in the playback mode.
   (Place a 500 g. weight on the cassette tape to prevent floating of the cassette tape.)

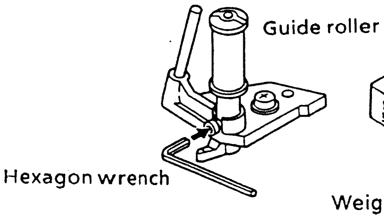


Figure 1-53.

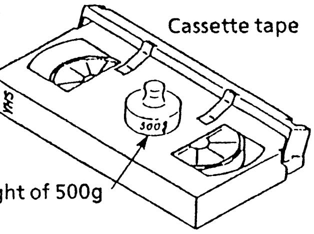
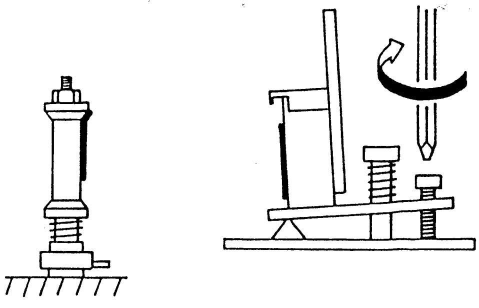


Figure 1-54.

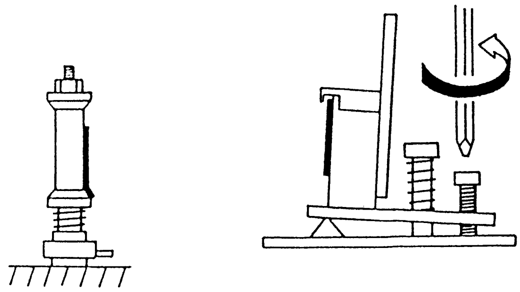
   d) Change the envelope waveform from MAX to MIN, and MIN to MAX by pushing the (+) or (–) tracking button, and check a flat response is obtained on the waveform.
   e) If a flat response cannot be obtained, roughly adjust the guide rollers on the supply side and take-up side using an adjusting screw driver until a flat response can be obtained.
   f) Turn the A/C head tilt adjusting screw with a screwdriver to prevent the tape from wrinkling at the upper and lower flanges of the fixed guide.
      1) Wrinkles at the upper flange : Turn the above adjusting screw clockwise, as shown in Figure. 1-55 (a)
      2) Wrinkles at the lower flange : Turn the above adjusting screw counterclockwise, as shown in Figure. 1-55 (b)



Wrinkles at upper flange

Clockwise

(a)



Wrinkles at lower flange

Counterclockwise

(b)

Figure 1-55.

Notes:

1. Place the tracking control in the center position, and adjust the X-position adjusting nut so that the PB CHROMA envelop becomes maximum for easier rough adjustment of the tape drive train.
2. In the rough adjustment, pay particular attention to the outlet side.

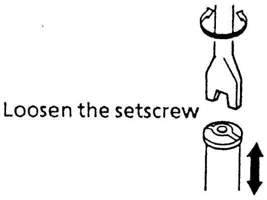


Figure 1-56.

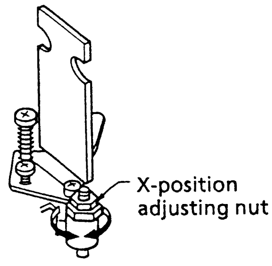


Figure 1 -57.

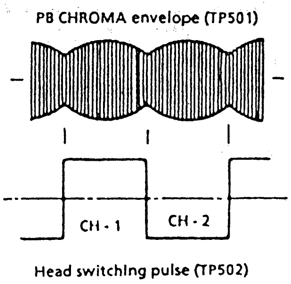


Figure 1-58.

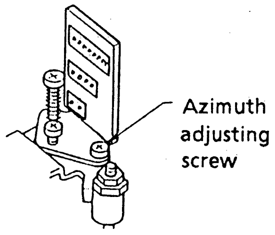


Figure 1-59.

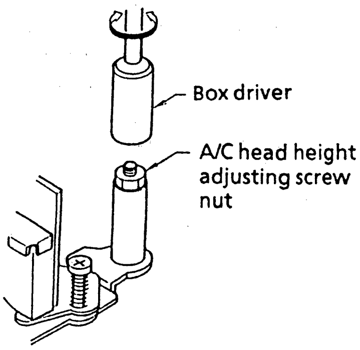


Figure 1-60.

6. Adjustment of A/C head height and azimuth. (VR0CPSV)
   a) Connect an oscilloscope to the audio output terminal.
   b) Use the alignment tape and play back its audio 6 kHz signal (monoscope pattern for video signal). Adjust the azimuth adjusting screw to obtain the maximum audio output on an oscilloscope. (See Figure 1-59.)
   c) Use the alignment tape and play back its audio 1 kHz signal (colour bar for video signal) and slowly rotate the A/C head height adjusting nut with the special box driver to obtain the maximum audio output.
   d) Perform the adjustment in b) again.
   e) After this adjustment, apply glyptal to the screws and nuts to fix them.

7. Adjustment of tape drive train azimuth. (VR0CPSV)
   a) Connect the oscilloscope to the test points (TP501) for PB CHROMA envelope output. Set the synchronism of the oscilloscope to EXT. The PB CHROMA signal is to be triggered by the head switching pulse (TP502).
   b) Play back the tape drive train alignment tape.
   c) Push the (+) or (–) button to change the envelope waveform from MAX to MIN, and MIN to MAX. Adjust the guide roller's height on the supply and take-up sides with an adjusting screw driver, to obtain an envelop waveform that is as flat as possible.
   d) If the tape is above or below the helical lead, the PB CHROMA waveform will take the shape shown in Figure 1-61.
   e) Adjust for maximum flatness of the envelope as the step 5, e) in page 24.
   f) Push the (+) or (–) tracking button to check that a flat response is obtained on the envelope waveform.

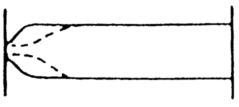
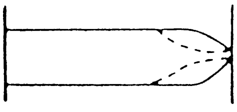
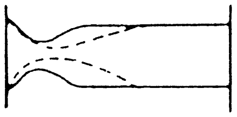
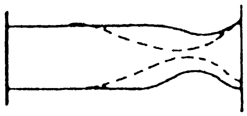
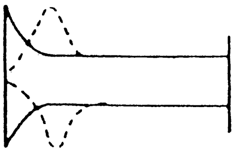
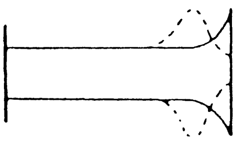
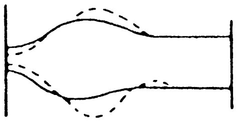
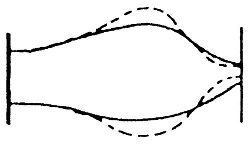
	When the tape is above the helical lead.		When the tape is below the helical lead.	
	Supply side	Take-up side	Supply side	Take-up side
				
				
Adjustment	Supply side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Take-up side guide roller rotated in clockwise direction (lowers guide roller) to flatten envelope.	Supply side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The supply side guide roller is then rotated in the clockwise direction to flatten the envelope.	Take-up side guide roller rotated in counterclockwise direction (raises guide roller) to make the tape float above the helical lead. The take-up side guide roller is then rotated in the clockwise direction to flatten the envelope.

Figure 1-61.

8. Adjustment of A/C head X-position. (VR0CPSV)
   a) Push the (+) and (–) tracking buttons at the same time to the preset mode.
   b) Rotate the X-position adjusting nut with an adjusting box driver, and adjust the A/C head position for maximum head switching pulse low side envelope.
9. EP (N head) tape travel and X position adjustment.
   a) Play the alignment tape (VR9EBZCS).
   b) Check the envelope waveform on the oscilloscope screen.
   c) Adjust the supply and rewind conditions using the guide roller.
   d) Adjust the X position.
   e) Fix the guide roller with the setscrews.
   f) Recheck the flatness of the envelope waveform.
   g) Adjust the switching point.

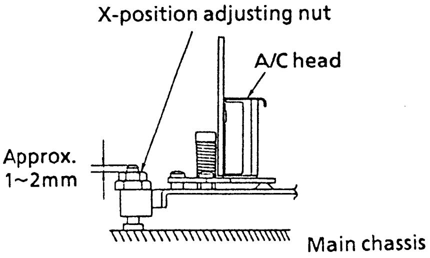

X-position adjusting nut
A/C head
Approx.
1~2mm
Main chassis

Figure 1-62.

REPLACEMENT OF THE CAPSTAN D.D. (DIRECT DRIVE) MOTOR

- Remove the cassette housing control assembly.
- **Removal (Follow the order of indicated numbers.)**

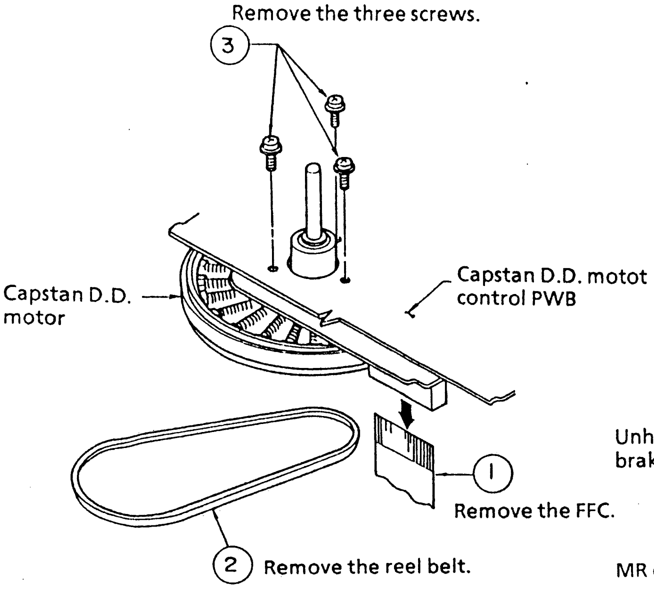

Remove the three screws.
③
Capstan D.D. motor
Capstan D.D. motot control PWB
①
Remove the FFC.
②
Remove the reel belt.

Figure 1-63.

- **Reassembly**

1. Mount the capstan motor on the mechanism chassis making sure not to allow the capstan shaft to hit the mechanism chassis, and attach it with the three screws.
2. Insert the FFC into the capstan D.D. motor control PWB.
3. Attach the reel belt.

Notes :

1. After installing the capstan D.D. motor, be sure to rotate the capstan D.D. motor and check the movement.
2. Check and adjust the servo circuit.

REMOVAL AND REASSEMBLY OF THE LOADING GEAR BLOCK

Notes : The following explanation is based on 4-head models. (The slow brake spring and slow brake lever are not provided on 2-head models.)

1. Remove the cassette housing control assembly.
2. Remove the reel belt.
3. Remove the reel block.

- **Removal**

Notes :

1. Use care not to deform the parts hooked to the slow brake shaft cap, take-up loading gear, and supply loading gear as shown in Figure 1-64.

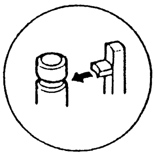


Figure 1-64.

2. In removing the loading gear, secure the guide roller with a rubber band or the like beforehand for easier reassembly.

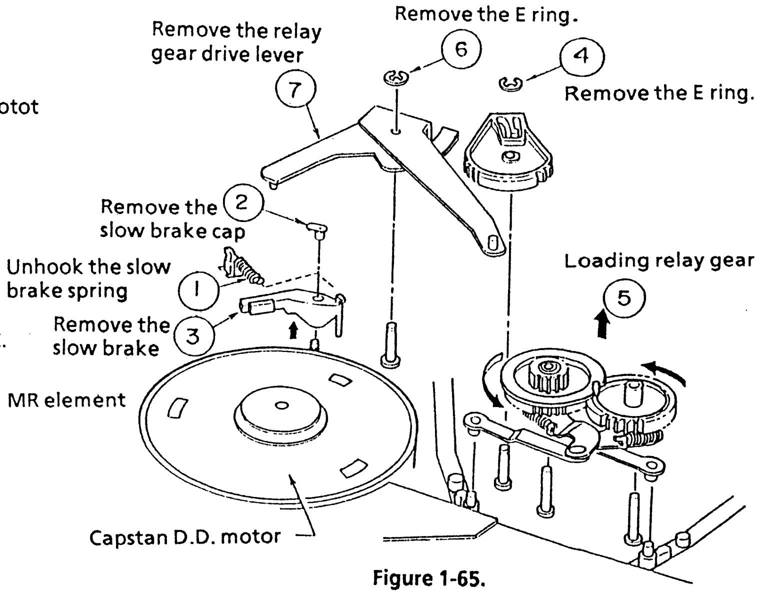

Remove the E ring.
Remove the relay gear drive lever
⑥
④
⑦
Remove the E ring.
Remove the ② slow brake cap
Unhook the slow brake spring ①
Remove the slow brake ③
Loading relay gear
⑤
MR element
Capstan D.D. motor

Figure 1-65.

1. Remove the slow brake spring ①.
2. Remove the slow brake shaft cap ②.
3. Remove the slow brake lever ③.
4. Remove the E ring ④.
5. Rotate the take-up loading gear, take-up loading arm assembly, supply loading gear and supply loading arm assembly slightly in the loading direction, and take them ⑤ all out.
6. Remove the E ring ⑥.
7. Remove the relay gear drive lever ⑦.

- **Reassembly**
  Reverse the procedure. Be sure to match the tally marks on the gears.

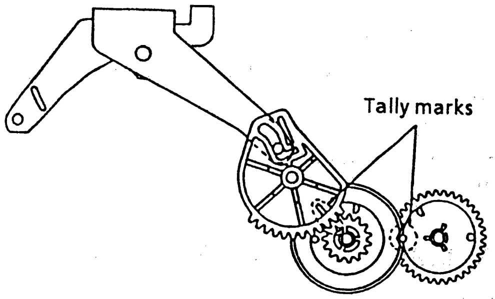


Figure 1-66.

Notes :
1. When reassembling, apply specified grease to the following points; all the gear teeth, all the gear shafts and the cam groove of loading relay gear.
2. Be careful not to deform the supply/take-up loading arms.
3. Be careful to keep clean the slow brake lever felt.
4. Be also careful to keep the outer surface of the capstan D.D. motor free from dust and dirt. (If stained, the MR (Magnet Resistor) element might be damaged.)
5. Take care not to deform the anti-fall hooks of the slow brake lever, slow brake shaft cap and supply/ take-up lading gears more than required.

REMOVAL AND REASSEMBLY OF LOADING BLOCK

- **Removal**

1. Remove the leads ①.
2. Remove the cassette loading belt ②.
3. Unscrew the three screws ③.
4. Pull the loading block upward.

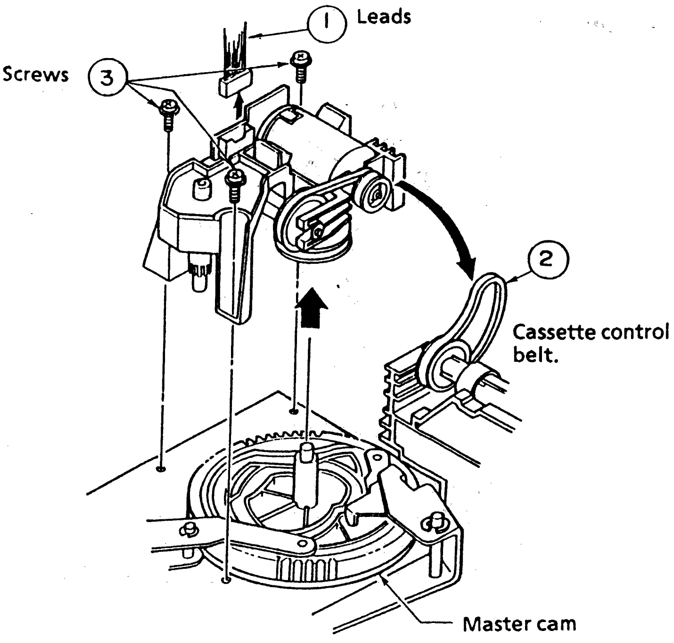


Figure 1-67.

Note :
When using a magnetic screw driver in removal of three screws, do not allow the magnetic driver to hit the A/C head or drums.

- **Reassembly**

1. Turn the master cam all the way counterclockwise.
2. Match the tally mark on the cam switch with the mating mark. Fit the loading block and the master cam with each other. Tighten up the three screws.

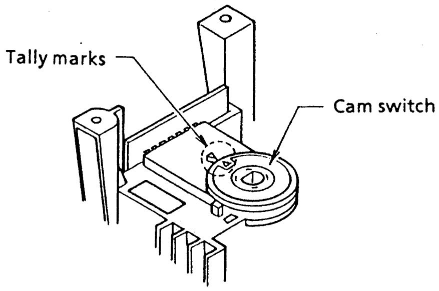


Figure 1-68.

3. Finally connect the leads and apply the cassette loading belt.

Notes:
1. Be careful not to scratch the gear.
2. Be careful not to stain the belt. If dirty, clean it up with the specified cleaning liquid.

REPLACEMENT OF LOADING MOTOR

1. Set the cassette ejected condition by placing the unit in the cassette eject mode.
2. Unplug the power cord.
3. Remove the loading block in accordance with the statements and drawings above.

- **Removal**

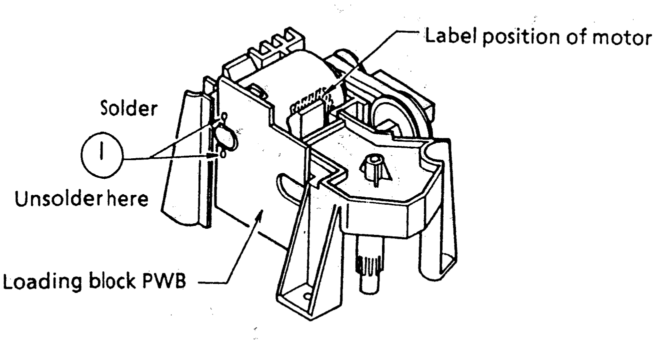
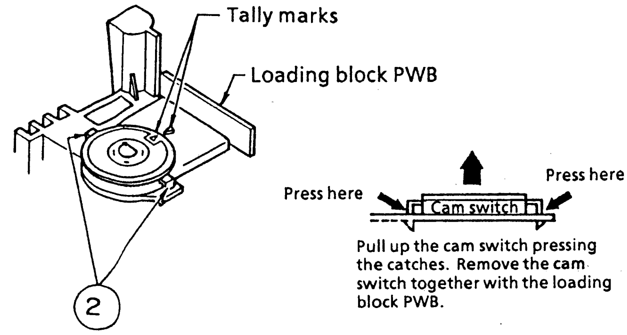

Label position of motor
Solder
①
Unsolder here
Loading block PWB

Figure 1-69.

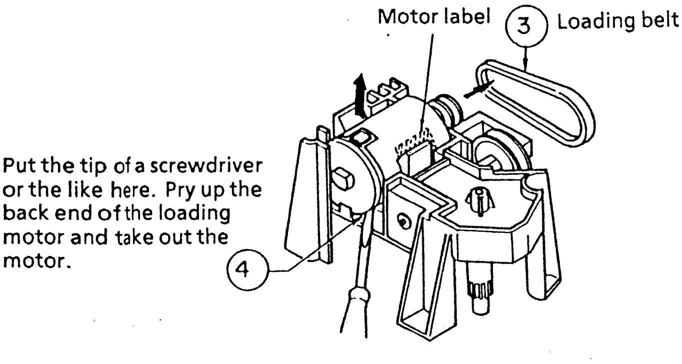
1. Unsolder the leads ① from the loading motor.
2. Unlock the left and right catches ② of the cam switch off the loading block. Take out the cam switch and loading block PWB (See Figure 1-70).


Tally marks
Loading block PWB
Press here
Cam switch
Press here
②
Catches of cam switch

Pull up the cam switch pressing the catches. Remove the cam switch together with the loading block PWB.

Figure 1-70.

3. Take out the loading belt ③.
4. Pry up the back end of the loading motor with a screw driver or the like as in Figure 1-71 and take out the motor ④.

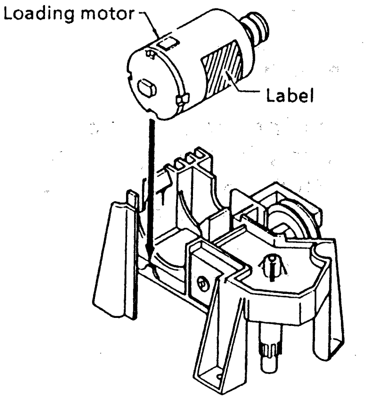

Motor label
③ Loading belt
④

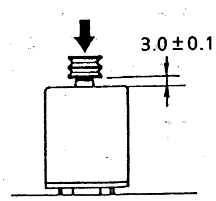
Put the tip of a screwdriver or the like here. Pry up the back end of the loading motor and take out the motor.

Figure 1-71.

- **Reassembly**

1. Remove the loading motor, and mount a new loading motor as in Figure 1-72.
2. Place the loading motor so that its label is visible as shown in Figure 1-72. Make sure that the screw hole at the motor shaft, protuberance on the loading block, and the motor's back end marked with the arrow are mated with each other.


Loading motor
Label



Note:
When press-fitting the loading motor pulley, keep the pressure less than 5 kg, and the gap between the motor and pulley should be 3.0 ± 0.1 mm.

Figure 1-72.

Figure 1-73.

3. Set the lading block PWB and the cam switch in position.
4. Resolder the leads to the loading motor.
5. Finally place the loading block (See page 27).
6. Attach the loading belt.

REPLACEMENT OF MASTER CAM

- **Removal**

1. Remove the E ring ①.
2. Remove the half loading drive lever ②.
3. Remove the E ring ③.
4. Remove the pinch roller lever ④.
5. Pull out the master cam ⑤ upward.

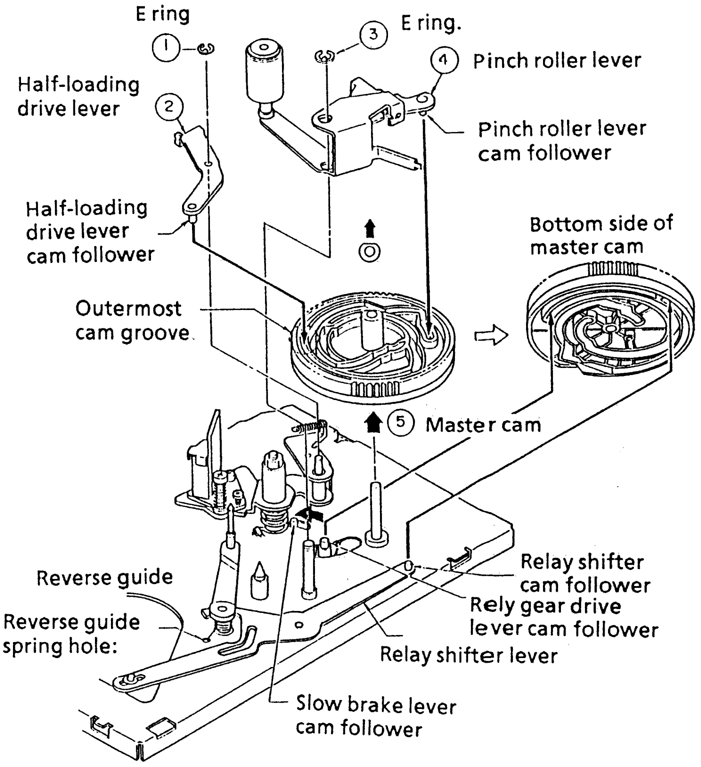

E ring
①
③ E ring.
④ Pinch roller lever
Half-loading drive lever ②
Pinch roller lever cam follower
Half-loading drive lever cam follower
⑤
Bottom side of master cam
Outermost cam groove
⑤ Master cam
Reverse guide
Reverse guide spring hole:
Relay shifter cam follower
Rely gear drive lever cam follower
Relay shifter lever
Slow brake lever cam follower

Figure 1-74.

- **Reassembly**

1. Place the relay gear drive lever in the unloading state.
2. Place the relay shifter so that it is in contact with the reverse guide spring hole in the mechanism chassis. Release the slow brake lever with a finger to bring it away from the capstan (in the direction of arrow). Then place the master cam so that the D cut-off part of the master cam faces the direction of arrow.
3. Place the half loading recipro lever's cam follower so that it fits in the master cam's circumferential cam groove (marked with arrow), attach the E ring, then mount the half-loading recipro lever.
4. Turn the master cam somewhat clockwise until the pinch roller lever's cam follower goes into the master cam's groove (marked with arrow). Mount the pinch roller level and then attach the E ring.
5. Rotate the master cam by hand to make sure all the four levers (relay gear drive lever, half loading recipro lever, pinch roller lever, and relay shifter lever) are in the cam grooves in place.
6. Mount the loading block. (See page 27.)

Notes :

1. Be careful not to scratch the teeth and grooves of the master cam.
2. After installation of the master cam, be sure to rotate the master cam by hand before installing the loading block. If the levers are in wrong position, the master cam and the levers may get damaged when the motor stares.
3. Apply specified grease to the master cam's grooves and teeth.

REPLACEMENT OF UPPER DRUM ASSEMBLY

- **Disassembly**

1. Remove the video head cleaner arm assembly ①. (Push the hook in the direction of arrow, as shown at right, to release it. Now pull the video head cleaner arm assembly upward.)

Refer to the description in REPLACING THE AHC.

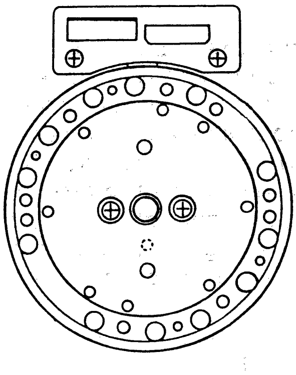


Figure 1-75

Note:
The clearance between the outer surface of the disk and the inner surface of the upper drum is in the order of microns. Enough care should be paid when replacing. Even slight scratches or a small amount of foreign substances will affect their fitting accuracy.

2. Remove the upper drum

Note:

1) Do not touch the drum surface with bare hands.
2) Using the upper drum replacing tool, pull out the upper drum with care not to allow it to tilt.
3) When taking out the upper drum, be very careful to prevent it from hitting against the rotary transformer.
4) Do not apply the screwdriver to the screws too hard.

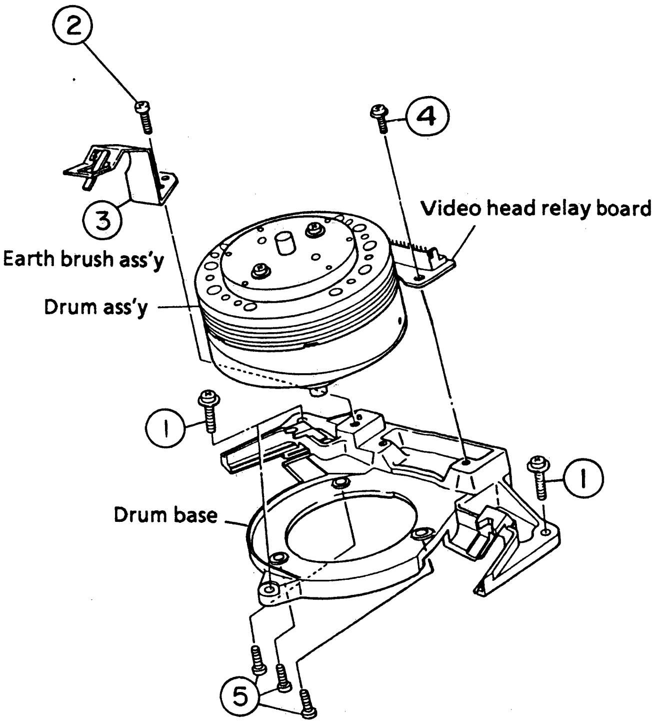


Figure 1-76.

- **Reassembly**

1. Set a replacement upper drum.

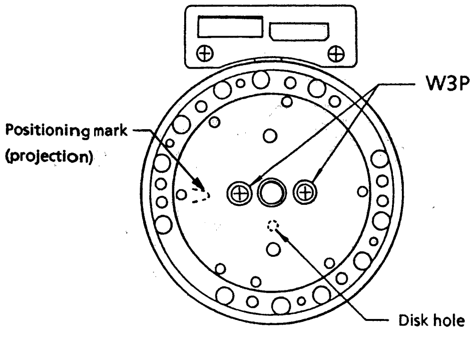
Notes:

1) Before setting the drum, make sure the disk is free from scratches and stain over its surface.
2) Be sure also that the upper drum is free from scratches and stain over its surface.
3) In assembling these parts, slowly fit the upper drum, not tilted, onto the disk. Be also careful not to hit against the rotary transformer.
4) During assembling, be careful not to allow any dust and dirt in between the disk and the upper drum.
5) Do not confuse the positional relation between the disk and the upper drum. (Fig. 1-77)
6) Slowly tighten the screws with the screwdriver. Pay due care when retightening.

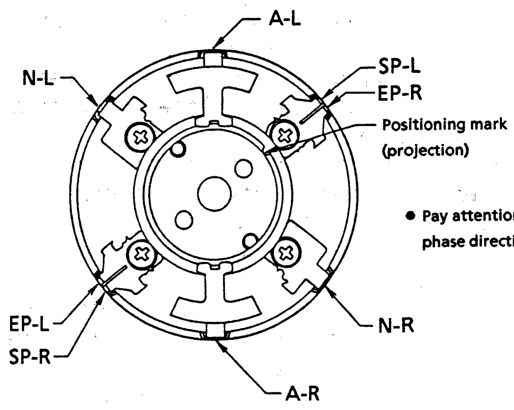
2. Fasten the drum in place with the two setscrews.
3. Now be sure to check the tape drive train adjustment and the following electrical adjustments.

    * Playback switching point and N head playback switching point adjustments using specific alignment tapes. (Make adjustments in the order of PAL mode, NTSC mode and N head.)
    * X position checking and adjustment.
    * Servo circuit adjustment: SP and EP slow mode tracking preset adjustment. (Reverse slow mode tracking preset to be done in SP and EP too. This adjustment to be made just after the X position adjustment.)
    * HiFi playback level adjustment.

4. Make self-recording in EP mode. Play back the recording on the N head (high-quality mode) and observe the envelope output on the oscilloscope screen. If the difference in output between the right and left channels is too large (70 : 100 or more difference), this implies that the upper drum and the disk have been reassembled with some dust or dirt in between. Take out the upper drum again, clean up the end surfaces of the disk and the upper drum, and place the drum in position. If the output difference is still large, replace the upper drum or the entire upper and lower drum assembly.


W3P + 9S
Positioning mark
(projection)
Disk hole

Top view of the upper drum


A-L
N-L
SP-L
EP-R
Positioning mark
(projection)
EP-L
SP-R
N-R
A-R

- Pay attention to the phase direction

Bottom view of the upper drum

Figure 1-77.

REPLACEMENT OF D.D. MOTOR

1. Put the unit in the cassette eject mode.
2. Unplug the power cord.

- Disassembly (Take the steps in numerical order.) (Take the reverse steps for reassembling.)

1) Disconnect the FFC.
2) Unscrew the D.D. rotor assembly setscrews.
3) Remove the D.D. rotor assembly and the drum damper assembly.
4) Unscrew the D.D. stator assembly setscrews.
5) Remove the D.D. stator assembly.

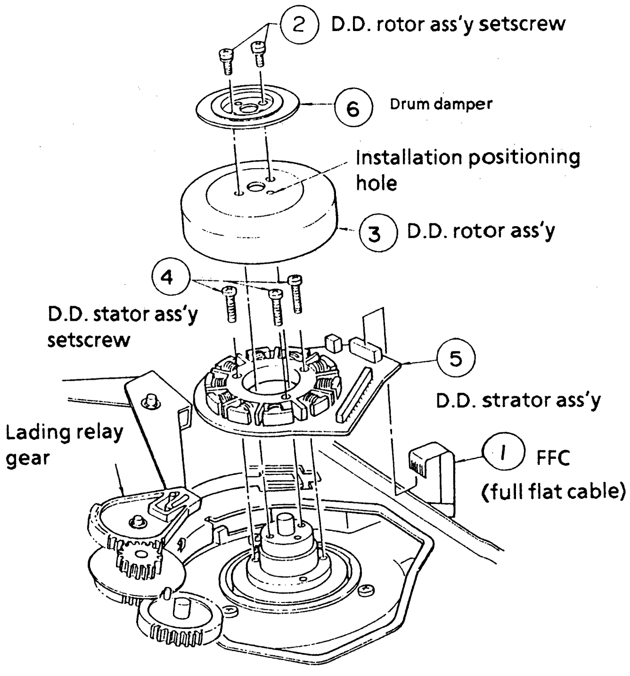

② D.D. rotor ass'y setscrew
⑥ Drum damper
Installation positioning hole
③ D.D. rotor ass'y
④
D.D. stator ass'y setscrew
⑤
D.D. strator ass'y
Lading relay gear
① FFC
(full flat cable)

Figure 1-78.

REPLACING THE AHC (AUTOMATIC HEAD CLEANER)

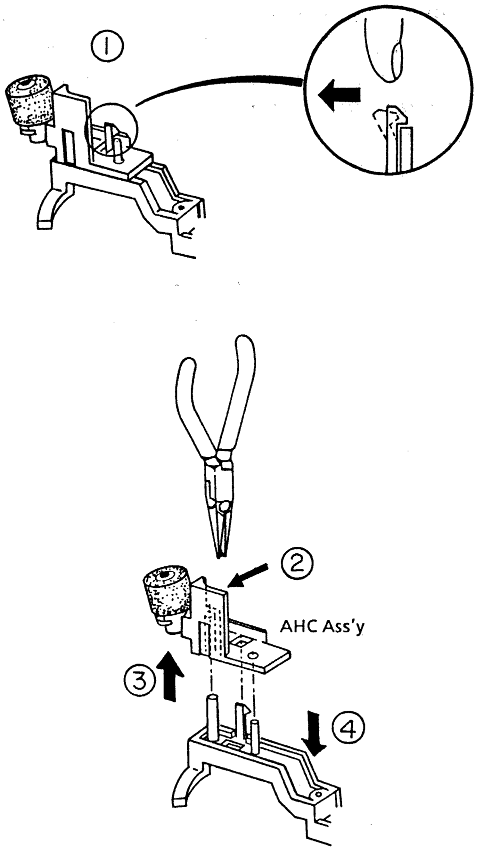


Figure 1-79.

● Removal

1. Unhook part ① with a finger in the direction of arrow.
   Hold the rib (marked with an arrow) of the AHC ass'y ② with electrician's pliers or the like, and pull the ass'y upward in the direction of arrow ③.

Note:

To pull out the AHC ass'y, hold the AHC lever down.

● Reassembly

1. Push down the AHC ass'y in the direction of arrow ④. Make sure that the ass'y is secured in position by the hook of part ①.

Notes:

- Be careful to keep the AHC ass'y out of contact with the drum.
- Be careful to keep the cleaner section of the ass'y free of grease or contaminants.

ADJUSTMENT OF THE ELECTRICAL CIRCUITRY

Prior to the adjustment:
In most cases, necessity for electrical circuits will arise from replacement of mechanical parts including the video head. Before starting adjustment of electrical circuits, check that mechanical operation of the equipment is complete (the mechanism are adjusted completely).

If the equipment fails electrically, locate a defect or defects first of all using instruments. Then repair or replace parts and make adjustment by the procedures described below.
When required instruments are not available, do not move controls indiscriminately.

- **Instruments**
  - Colour monitor TV
  - DC regulated power supply
  - VTVM
  - Oscilloscope
  - Audio generator
  - Colour bar generator
  - Alignment tape
  - Frequency counter
  - Blank video tape(VHS)

ADJUSTMENT OF SYSTEM CONTROL / SERVO CIRCUIT

- **Test points layout**

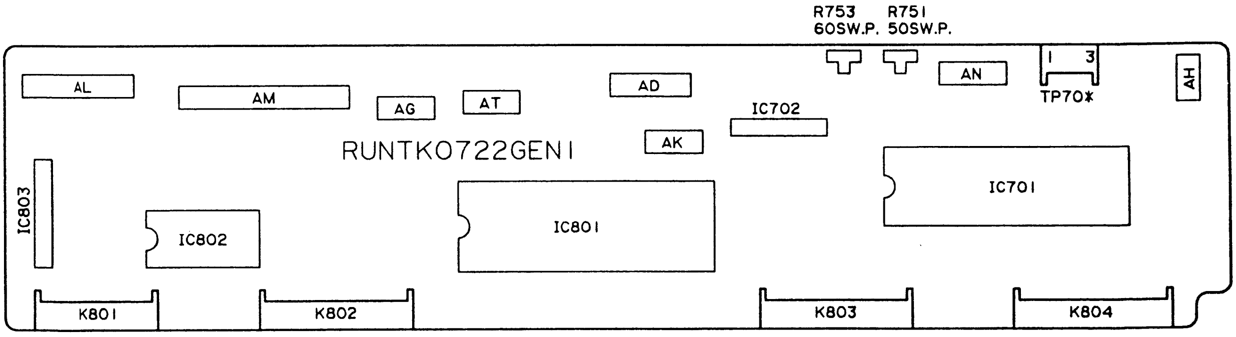

R753
60SW.P.
R751
50SW.P.
AL
AM
AG
AT
AD
IC702
AN
1
3
TP70✱
AH
RUNTK0722GEN I
AK
IC701
IC803
IC802
IC801
K801
K802
K803
K804

Figure 2-1 . SYSTEM / SERVO PWB

■ ADJUSTMENT OF SERVO CIRCUIT

Adjustment of PAL System playback switching point

Measuring instrument	Oscilloscope
Mode	Playback (tracking at center)
Tape used	Alignment tape (VROCPSV)
Test point	CH-1; TP2 (at MAIN PWB) CH-2; Video output terminal.(CH-1 trigger slope switch at (+), Internal trigger at CH-1 side)
Control	R751 (50 SW. P. ADJ. control)
Specification	6.5 ± 0.5H

Note : TP2 is located on the main unit.

1. Insert the PAL system alignment tape (VROCPSV) and put the unit in the playback mode.
2. Press both tracking control button at the same time to set the tracking in center.
3. Adjust R751 (50 SW. P. ADJ. control) so that the waveform on the oscilloscope screen be as shown in Figure 2-2.

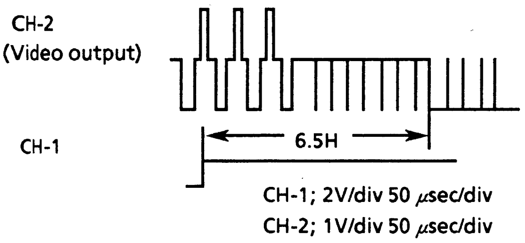


Figure 2-2.

Adjustment of NTSC System playback switching point

Measuring instrument	Oscilloscope
Mode	Playback (tracking at center)
Tape used	Alignment tape (VROATSV)
Test point	CH-1 ; TP2 (at MAIN PWB) CH-2 ; Video output terminal. (CH-1 trigger slope switch at (+), Internal trigger at CH-1 side)
Control	R753 (60 SW. P. ADJ. control)
Specification	6.5 ± 0.5H

Note : TP2 is located on the main unit.

1. Insert the NTSC system alignment tape (VROATSV) and put the unit in the playback mode.
2. Press both tracking control button at the same time to set the tracking in center.
3. Adjust R753 (60 SW. P. ADJ. control) so that the waveform on the oscilloscope screen be as shown in Figure 2-3.

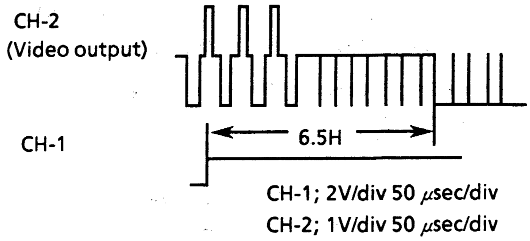


Figure 2-3.

Adjustment of PAL System SP Slow tracking

Measuring instrument	Monitor TV
Mode	Recording and playback on self-recording tape.
Input signal	Commercial broadcast or video signal. (external input selector switch)
Test point	Monitor screen
Adjusting point	Tracking control button (+), (−)
Specification	No noise bar on the monitor TV screen.

1. Play back the self-recorded tape in the PAL System SP slow tracking mode.
2. Make the cathode of the timer D5003 and cathode of D5006 short-circuited.
3. Be sure that all the fluorescent display tubes light up.
4. Remove the short-circuit and make sure that "CASS" appears on all the above display tubes.
5. Adjust the tracking control using the TRACKING button on the main unit or the remote controller so that there is no noise on the screen.

Adjustment of NTSC System SP slow tracking

Measuring instrument	Monitor TV
Mode	Recording and playback on self-recording tape.
Input signal	Commercial broadcast or video signal. (external input selector switch)
Test Point	Monitor screen.
Adjusting point	Tracking control button (+), (−)
Specification	No noise bar on the monitor TV screen.

1. Play back the self-recorded tape in the NTSC system SP slow tracking mode.
2. Make the cathode of the timer D5003 and cathode of D5006 short-circuited.
3. Be sure that all the fluorescent display tubes light up.
4. Remove the short-circuit and make sure that "CASS" appears on all the above display tubes.

5. Adjust the tracking control using the TRACKING button on the main unit or the remote controller so that there is no noise on the screen.

Adjustment of PAL System LP slow tracking

Measuring instrument	Monitor TV
Mode	Recording and playback on self-recording tape.
Input signal	Commercial broadcast or video signal. (external input selector switch)
Test point	Monitor screen.
Adjusting point	Tracking control button (+), (−)
Specification	No noise bar on the monitor TV screen.

1. Play back the self-recorded tape in the PAL System LP slow tracking mode.
2. Make the cathode of the timer D5003 and cathode of D5006 short-circuited.
3. Be sure that all the fluorescent display tubes light up.
4. Remove the short-circuit and make sure that "CASS" appears on all the above display tubes.
5. Adjust the tracking control using the TRACKING button on the main unit or the remote controller so that there is no noise on the screen.

Adjustment of NTSC System EP slow tracking

Measuring instrument	Monitor TV
Mode	Recording and playback on self-recording tape.
Input signal	Commercial broadcast or video signal. (external input selector switch)
Test point	Monitor screen.
Adjusting point	Tracking control button (+), (−)
Specification	No noise bar on the monitor TV screen.

1. Play back the self-recorded tape in the NTSC system EP slow tracking mode.
2. Make the cathode of the timer D5003 and cathode of D5006 short-circuited.
3. Be sure that all the fluorescent display tubes light up.
4. Remove the short-circuit and make sure that "CASS" appears on all the above dispaly tubes.
5. Adjust the tracking control using the TRACKING button on the main unit or the remote controller so that there is no noise on the screen.

Adjustment of PAL System still picture vertical sync

Measuring instrument	Monitor TV
Mode	Still picture playback
Input signal	Self-recording tape
Test point	Monitor screen
Adjusting point	Tracking control button (+), (−)
Specification	No noise jitter

1. Play back the self-recorded tape in the PAL System SP still mode.
2. Using the TRACKING button on the main unit or the remote controller, make adjustment so that jitter becomes minimum.
3. Now press the STOP button to stop the tape.

Adjustment of NTSC System still picture vertical sync

Measuring instrument	Monitor TV
Mode	Still picture playback
Input signal	Self-recording tape
Test point	Monitor screen
Adjusting point	Tracking control button (+), (−)
Specification	No noise jitter

1. Play back the self-recorded tape in the NTSC System SP still mode.
2. Using the TRACKING button on the main unit or the remote controller, make adjustment so that jitter becomes minimum.
3. Now press the STOP button to stop the tape.

ADJUSTMENT OF Y / C CIRCUIT

● Test points layout

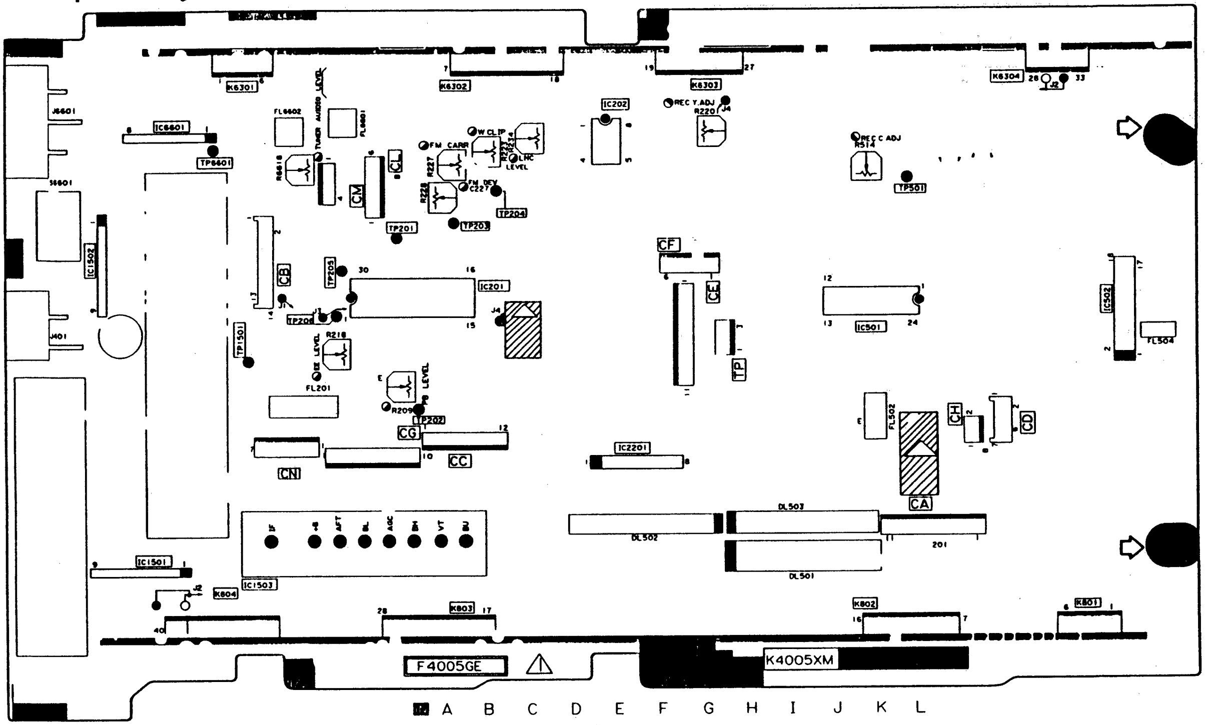

K6301
K6302
K6303
K6304
IC202
REC Y ADJ
R220
J4
REC C ADJ
R514
TP501
IC6601
TP6601
FL6602
FL6601
TUNER AUDIO LEVEL
W CLIP
FM CARR
R227
R228
C227
FM DEV
LHC LEVEL
TP204
TP203
TP201
CM
CL
CB
TP205
IC201
TP206
R218
FL201
R209
TP202
CG
CC
CN
IC1502
TP1501
CF
CE
TP
IC501
IC502
FL504
FL502
CH
CD
CA
IC2201
DL503
DL502
DL501
IF
AFT
BL
AGC
VT
IC1501
IC1503
K604
K803
K802
K801
F4005GE
K4005XM
A
B
C
D
E
F
G
H
I
J
K
L

Figure 2-7 . MAIN PWB

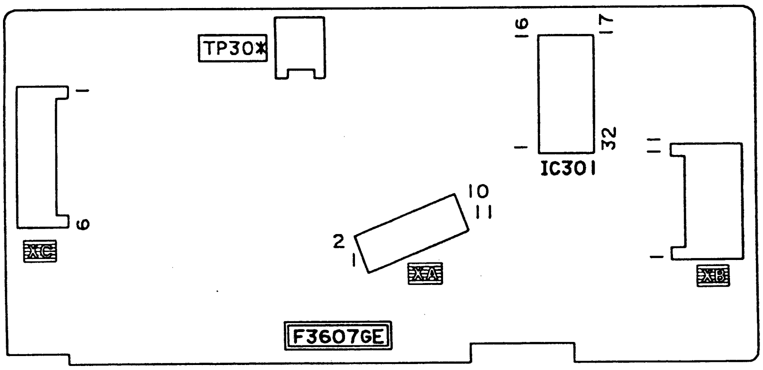

TP30✱
16
17
32
1
IC301
10
11
2
1
9
XC
XA
XB
F3607GE

Figure 2-8. HEAD AMP PWB

■ ADJUSTMENT OF Y/C CIRCUIT

Adjustment of EE level

Measuring instrument	Oscilloscope
Mode	Recording
Input signal	Standard colour bar (stair-case waveform)
Test point	Video output terminal
Adjusting point	R218 (EE level control)
Specification	2.0 ± 0.1Vp-p (not terminated)

1. Set the unit in record mode.
2. Feed the colour bar signal to the video input terminal. Observe the voltage the pin 9 of IC201 on the oscilloscope screen, adjust R218 (EE level control) to obtain the value indicated in Figure 2-9.

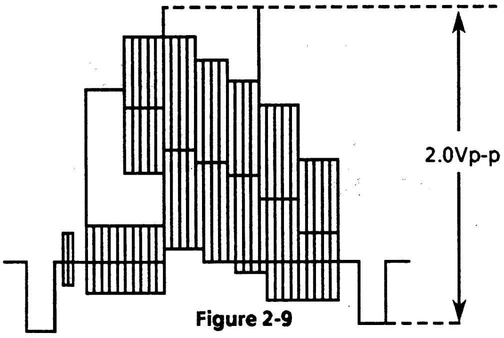


Figure 2-9

Adjustment of white clip

Measuring instrument	Oscilloscope
Mode	Recording
Input signal	Standard colour bar (stair-case waveform)
Test point	TP201
Adjusting point	R223 (white clip control)
Specification	80 ± 4%

1. Place the unit to the redord mode.
2. Feed the colour bar signal to the video input terminal.
3. Turn R227 clockwise to maximum position.
4. Observing the output at TP201, adjust R223 (white clip control) so that the white peak overshoot be 80 ± 4%.
5. Make sure that the dark peak overshoot is 50 ± 10%.

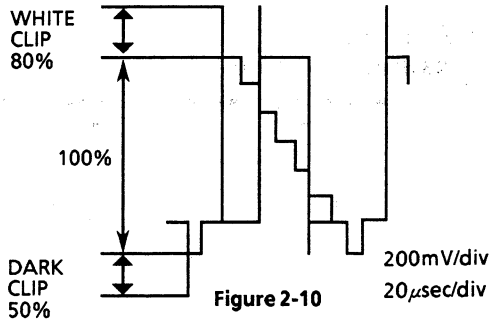


Figure 2-10

Adjustment of FM3.8MHz and 4.8MHz

Measuring instrument	Frequency counter	Oscilloscope
Mode	Recording	Self-recording / playback
Input signal	External input (no signal)	Standard colour bar (stair-case waveform)
Test point	TP205 (Signal) TP202 (Ground)	Video output terminal
Adjusting point	R227 (FM carrier control)	R228 (Deviation control)
Specification	3.8 MHz ± 50KHz	1.0 ± 0.04 Vp-p

Note.1:
Carry out this adjustment only when IC201 has been replaced or when the carrier setting(3.8MHz) or the deviation(4.8MHz) is found apparently out of specification.
Make this adjustment after the EE level has been completely adjusted.

Note.2:
The video output terminal should be terminated with a 75-ohm impedance.

1. First make sure that the EE video signal level is at the specified level.
2. Plase the unit in the record mode and get it ready for external input.
   Note:
   Do not connect anything to the external input terminal.
3. Hook up the frequency counter to TP205 and TP202. Adjust R227(FM carrier control) so that the counter reading be 3.8MHz.
   Note:
   Make sure the white clip control is not now applied to the waveform.
4. Feed the colour bar signal and make self-recording and playback.

5. Observe the video output terminal voltage (across the terminal resistor) on the oscilloscope screen. If the playback video signal level is above 1.0Vp-p, turn R228(deviation control) clockwise.
   If below 1.0Vp-p, turn the control counter-clockwise. Now make self-recording and playback again.
6. Repeat the above stap5 to finally get the playback video signal level at 1.0 ± 0.04Vp-p, as shown in Figure2-11.

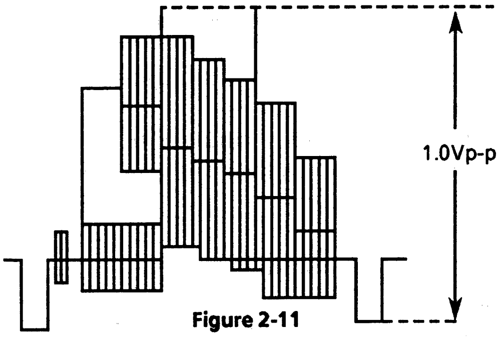


Figure 2-11

Adjustment of recording current

Measuring instrument	Oscilloscope	
Mode	Recording (PAL LP Mode)	
Input signal	Standard colour bar (stair-case waveform)	
Test signal	TP301 (GND at TP302) External trigger (video output terminal)	
Adjusting point	R2201 (recording Y control)	R514 (recording chroma control)
Specification	Sync tip level 88 ± 4mVp-p	Red level 23 ± 1mVp-p

Note:

TP301 and TP302 are located on the head amp PWB.

1. Place the unit to the record mode.
2. Feed the colour bar signal to the video input terminal.
3. Observing the waveform on the oscilloscope screen (external trigger at video output terminal), take the following staps.
   a) Connect the oscilloscope's ground and signal leads to TP302 and TP301, respectively.
   b) Turn R3301 (recording Y control) to minimum.
   c) Adjust R514 (recording chroma control) so that the red level be 23 ± 1mVp-p as shown in Figure2-13.
4. Adjust R2201 (recording Y control) so that the sync tip be 88 ± 4mVp-p as shown in Figure2-14.

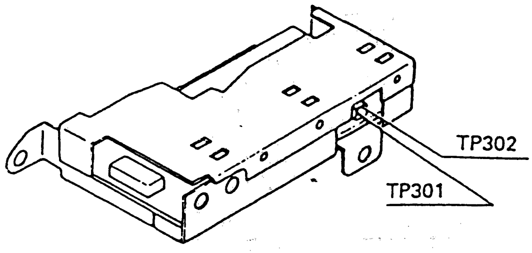


Figure 2-12.

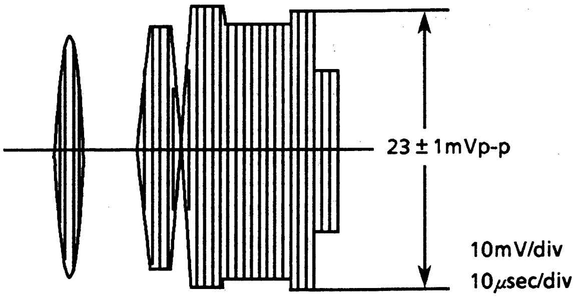


Figure 2-13.

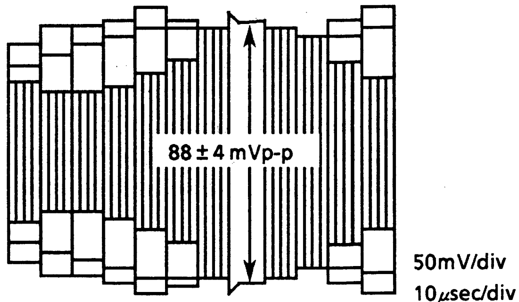


Figure 2-14.

■ ADJUSTMENT OF Y/C PLAYBACK CIRCUIT

Adjustment of playback video signal level

Measuring instrument	Oscilloscope
Mode	Playback
Tape used	Alignment tape (VROCPSV) (stair-case waveform)
Test point	Video output terminal
Adjusting point	R209 (playback level control)
Specification	2.0 ± 0.1Vp-p (not terminated)

1. Insert the alignment tape and place the unit to the playback mode.
2. Hook up the oscilloscope to video output terminal. Adjust R209 (playback level control) so that the on-screen waveform be 2.0 ± 0.1Vp-p as shown in Figure2-15.

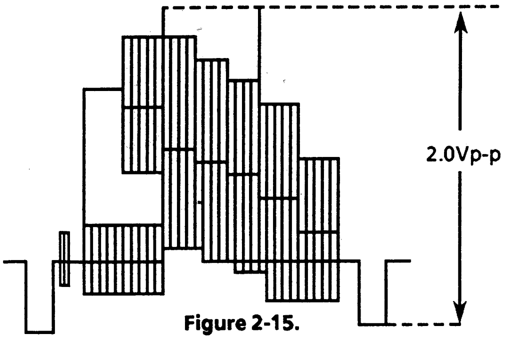


Figure 2-15.

Adjustment of delay level

Measuring instrument	Dual-beam oscilloscope
Mode	Playback
Tape used	Alignment tape (VROCPSV) (stair-case waveform)
Test point	CH-1; TP203 CH-2; TP204
Adjusting point	R234 (delay level control)
Specification	CH-2 level = CH-1 level

1. Insert the alignment tape and play it.
2. Adjust R234 (delay level control) so that the levels of CH-1 and CH-2 are the same as shown in Figure-2-16.

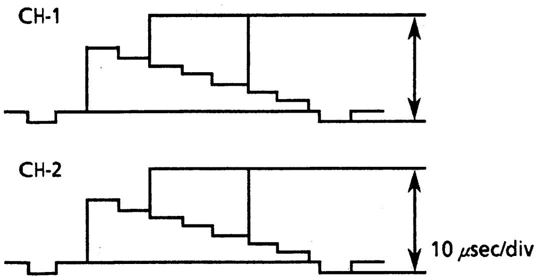

CH-1
CH-2
10 µsec/div

Figure 2-16.

Adjustment of the APC (PAL)

Measuring instrument	Frequency counter
Mode	Playback
Tape used	Alignment tape (VROCBFFS) (stair-case waveform)
Test point	TP501
Adjusting point	C521 (APC control)
Specification	4.433619MHz ± 20Hz

1. Insert the alignment tape and place the unit to the playback mode.
2. Connect the frequency counter to TP501. Adjust C521 (APC control) so that the counter reading be 4.433619MHz ± 20Hz.

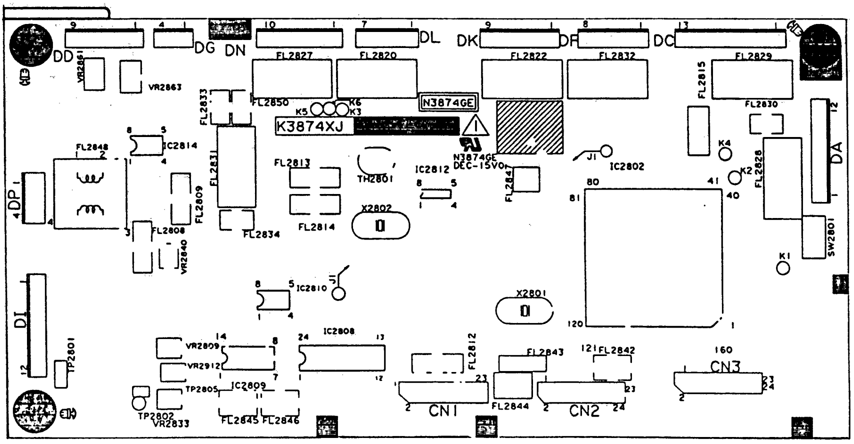
Adjustment of the APC (NTSC)

Measuring instrument	Frequency counter
Mode	Playback
Tape used	Alignment tape (VROATSV) (stair-case waveform)
Test point	TP501
Adjusting point	C525 (APC control)
Specification	3.579545MHz ± 20Hz

1. Insert the alignment tape and place the unit to the playback mode..
2. Connect the frequency counter to TP501. Adjust C525 (APC control) so that the counter reading be 3.579545MHz ± 20Hz.

■ ADJUSTMENT OF DIGITAL CIRCUIT (SYSTEM CONVERSION)

● Test points layout


DD
DG
DN
DL
DK
DF
DC
DA
DP
DI
FL2827
FL2820
FL2822
FL2832
FL2829
FL2815
FL2830
FL2850
FL2833
FL2831
FL2848
FL2809
FL2808
FL2834
FL2813
FL2814
FL2847
FL2828
FL2812
FL2843
FL2842
FL2844
FL2845
FL2846
VR2861
VR2863
VR2840
VR2809
VR2912
VR2833
IC2814
IC2812
IC2802
IC2810
IC2808
IC2809
K3874XJ
N3874GE
N3874GE DEC-15V0
K1
K2
K3
K4
K5
K6
J1
TH2801
X2802
X2801
SW2801
TP2801
TP2802
TP2805
CN1
CN2
CN3

DIGITAL PWB
Figure 2-17.

Adjustment of 18MHz clock signal

Measuring instrument	Oscilloscope
Mode	System conversion mode
Input signal	Split field PAL colour bar (1.0Vp-p)
Test point	TP2805 (Signal), TP2802 (GND)
Control	R2840 OSC Adj. control
Specification	2.0 ± 0.2μsec

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to NTSC position.
3. Connect a oscilloscope to test points TP2805 (Sig.) and TP2802 (GND).
4. Adjust R2840 so that the waveform on the oscilloscope screen be as shown in Figure 2-18.

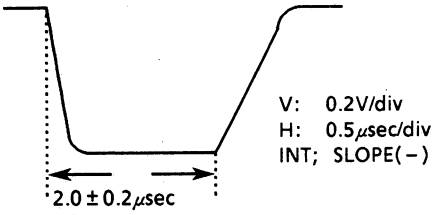


Figure 2-18.

Adjusting of D/A Y output level (Coarse adjustment)

Measuring instrument	Oscilloscope
Mode	Playback mode
Cassette	Alignment tape (VROCPSV)
Test point	TP2703 (Signal), TP2709 (GND) } in ANALOG UNIT
Control	R2833 D/A LEVEL Adj. control
Specification	0.35 ± 0.01Vp-p

1. Insert the PAL system alignment tape (VROCPSV) and put the unit in the playback mode.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to NTSC position.
3. Connect a oscilloscope to test points TP2703 (Sig.) and TP2709 (GND).
4. Adjust R2833 so that the signal amplitude is 0.35 ± 0.01Vp-p as on the oscilloscope screen be as shown in Figure 2-19.

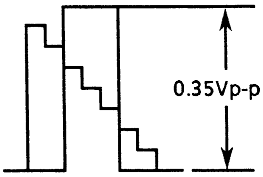


Figure 2-19.

Adjustment of D/A Y output leves (Minuteness adjustment)

Measuring instrument	Oscilloscope
Mode	Playback mode
Cassette	Alignment tape (VROCPSV)
Test point	VIDEO OUT jack
Control	R2833 D/A LEVEL Adj. control
Specification	1.05 ± 0.05Vp-p

1. Insert the PAL system alignment tape (VROCPSV) and put the unit in the playback mode.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to NTSC position.
3. Connect a 75 ohm terminating resistor to the VIDEO OUT jack and connect an oscilloscope across this terminating resistor.
4. Adjust R2833 so that the signal amplitude is 1.05 ± 0.05Vp-p as on the oscilloscope screen be as shown in Figure 2-20.

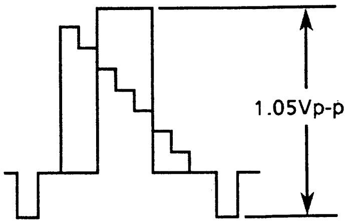


Figure 2-20.

Adjustment of colour difference clamp level (NTSC/PAL)

Measuring instrument	Oscilloscope
Mode	Playback mode
Cassette	Alignment tape (VROCPSV)
Test point	TP2801 (Signal), TP2802 (GND)
Control	R2809 colour difference clamp level control
Specification	0 ± 0.01Vp-p

1. Insert the PAL system alignment tape (VROCPSV) and put the unit in the playback mode. (Playback the B/W portion in the alignment tape)
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to NTSC position.
3. Connect a oscilloscope to test points TP2801 (Sig.) and TP2802 (GND).
4. Adjust R2809 so that the branking and colourless portion of the video signal is minimized as shown in Figure 2-21.

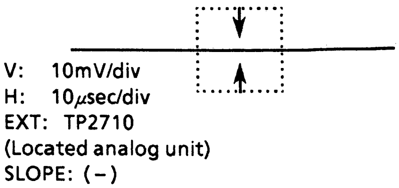


Figure 2-21.

Adjusting of colour difference clamp level (SECAM)

Measuring instrument	Oscilloscope
Mode	Playback mode
Cassette	Alignment tape (VROCSSV)
Test point	TP2801 (Signal), TP2802 (GND)
Control	R2912 colour difference clamp level control
Specification	0~ − 0.015Vp-p

1. Insert the PAL system alignment tape (VROCSSV) and put the unit in the playback mode. (Playback the B/W portion in the alignment tape.)
2. Set the PLAY (IN) switch to AUTO or PAL position and REC(OUT) switch to SECAM position.
3. Connect a oscilloscope to test points TP2801 (Sig.) and TP2802 (GND).
4. Adjust R2912 so that the branking and colourless portion of the video signal is specification as shown in Figure 2-22.

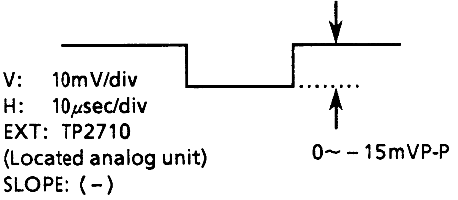

V: 10mV/div
H: 10μsec/div
EXT: TP2710
(Located analog unit)
SLOPE: (−)
0~ − 15mVP-P

Figure 2-22.

Adjustment of NTSC system N-Head playback Tracking preset

Measuring instrument	Dual-trace oscilloscope
Mode	Playback mode (Tracking at center)
Cassette	Alignment tape (VR9EBZCS)
Test point	CH-1: TP703 CH-2: TP702 CH-1 trigger slope switch at (+), Internal trigger at CH-1 side.
Control	R2861 N-PB TRK PRESET control
Specification	6.0 ± 0.3msec

1. Insert the NTSC system alignment tape (VR9EBZCS) and put the unit in the FINE playback mode.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC(OUT) switch to NTSC position.
3. Connect a dual-trace oscilloscope to test points TP703 and TP702.
4. Press both tracking control button at the same time to set the tracking in center.
5. Adjust R2861 so that the waveform on the oscilloscope screen be as shown in Figure 2-23.

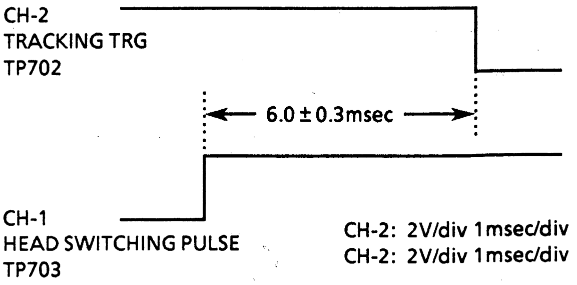

CH-2
TRACKING TRG
TP702
6.0 ± 0.3msec
CH-1
HEAD SWITCHING PULSE
TP703
CH-2: 2V/div 1msec/div
CH-2: 2V/div 1msec/div

Figure 2-23.

Adjustment of NTSC system N-Head playback phase

Measuring instrument	Dual-trace oscilloscope
Mode	Playback mode (Tracking at center)
Cassette	Alignment tape (VR9EBZCS)
Test point	CH-1: TP703 CH-2: TP2605 CH-1 trigger slope switch at (+), Internal trigger at CH-1 side.
Control	R2863 N-PB PHASE control
Specification	7.0 ± 0.5H

1. Insert the NTSC system alignment tape (VR9EBZCS) and put the unit in the FINE playback mode.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to NTSC position.
3. Set the SW2801 switch to TEST position located on the digital PWB.
4. Connect a dual-trace oscilloscope to test points TP703 and TP2605.
5. Press both tracking control button at the same time to set the tracking in center.
6. Adjust R2863 so that the waveform on the oscilloscope screen be as shown in Figure 2-24.
7. Set the SW2801 switch to NOR position.

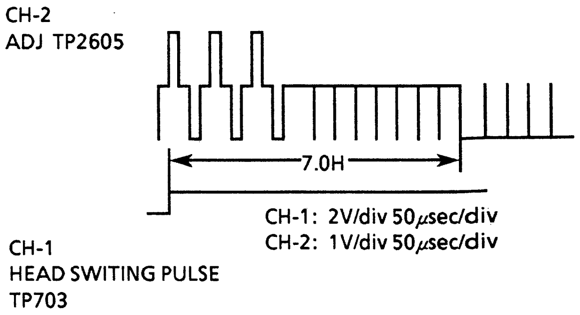

CH-2
ADJ TP2605
7.0H
CH-1: 2V/div 50μsec/div
CH-2: 1V/div 50μsec/div
CH-1
HEAD SWITING PULSE
TP703

Figure 2-24.

■ ADJUSTMENT OF ANALOG CIRCUIT (SYSTEM CONVERSION)

- **Test Points Layout**

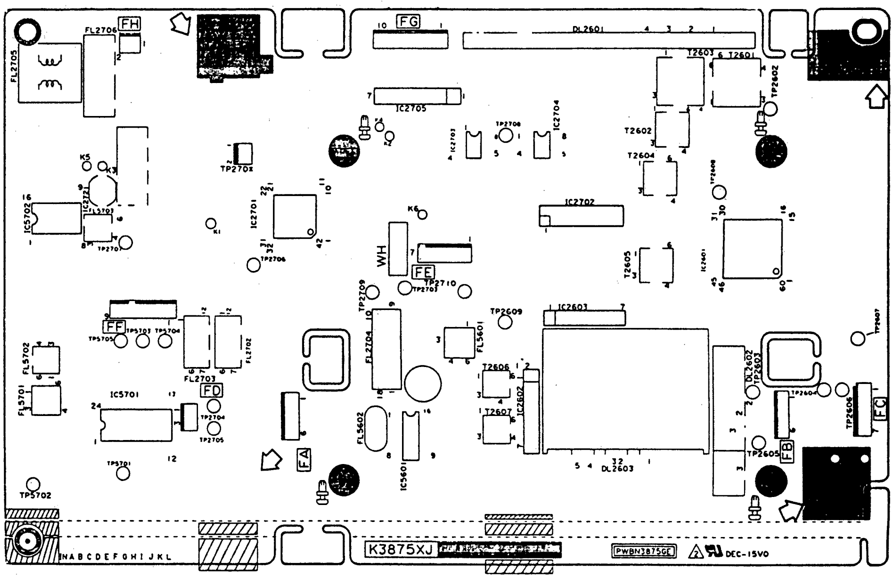

FH
FG
FE
FF
FD
FA
FB
FC
WH
DL2601
IC2705
IC2702
IC2701
IC2703
IC2704
IC5701
IC5702
IC2603
FL2705
FL2706
FL2703
FL5701
FL5702
T2601
T2602
T2603
T2604
T2605
T2606
T2607
TP2609
TP2602
TP2606
TP2605
TP2607
TP2705
TP2706
TP2708
TP2710
TP5701
TP5702
DL2603
K3875XJ
DEC-15V0

Figure 2-25. ANALOG PWB

Adjusting of AGC

Measuring instrument	Oscilloscope
Mode	System conversion mode
Input signal	Split field PAL colour bar (1.0VP-P)
Test point	VIDEO OUT 1 jack
Control	R2771 AGC control
Specification	1.0 ± 0.05Vp-p

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to NTSC position.
3. Connect a 75 ohm terminating resistor to the VIDEO OUT 1 jack and connect an oscilloscope across this terminating resistor.
4. Adjust R2771 so that the signal amplitude is 1.0 ± 0.05Vp-p as on the oscilloscope screen be as shown in Figure 2-26.

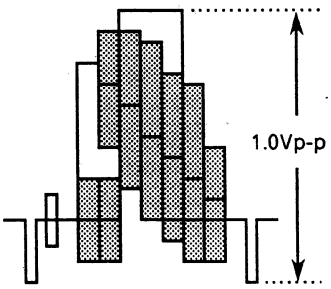


Figure 2-26.

Adjustment of PAL chroma trap

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field PAL colour bar (1.0Vp-p)
Test point	TP2609 (Signal), TP2606 (GND)
Control	T2607 PAL TRAP control
Specification	Chroma carria of video signal to be minimized

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to PAL position.
3. Connect a oscilloscope to testpoins TP2609 (Sig.), TP2606 (GND).
4. Adjust T2607 so that the chroma carria of video signal to be minimized.

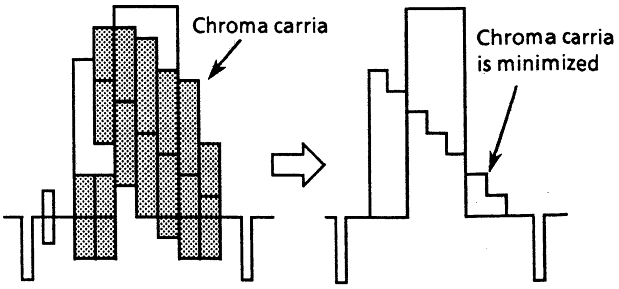

Chroma carria
Chroma carria is minimized

Figure 2-27.

Adjustment of SECAM chroma trap

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field SECAM colour bar (1.0Vp-p)
Test point	TP2609 (Signal), TP2606 (GND)
Control	T2606 SECAM TRAP control
Specification	Chroma carria of video signal to be minimized

1. Feed the SECAM colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to SECAM position.
3. Connect a oscilloscope to testpoins TP2609 (Sig.), TP 2606 (GND).
4. Adjust T2606 so that the chroma carria of video signal to be minimized.

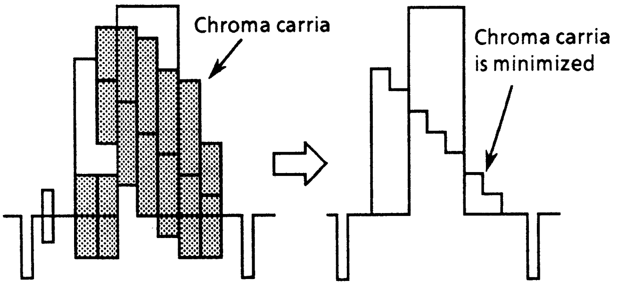


Figure 2-28.

Adjustment of SECAM bell filter

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field SECAM colour bar (1.0Vp-p)
Test point	TP2602 (Signal), TP2606 (GND)
Control	T2601 SECAM bell filter
Specification	———

1. Feed the SECAM colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to MESECAM position.
3. Connect an oscilloscope to test points TP2602 (Sig.) ~TP2606 (GND).
4. Adjust T2601 so that the match with the same level portion of the red and blue shown in Figure 2-29.

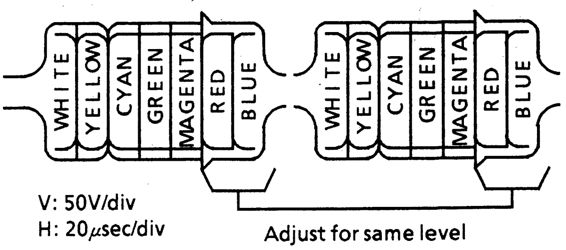


Figure 2-29.

Adjustment of SECAM B-Y demodulation

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field SECAM colour bar (1.0Vp-p)
Test point	TP2603 (Signal), TP2606 (GND)
Control	T2604 SECAM B-Y Demodulation
Specification	———

1. Feed the SECAM colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to MESECAM position.
3. Connect an oscilloscope to test points TP2603 (Sig.) ~TP2606 (GND).
4. Adjust T2604 so that the waveform on the oscilloscope screen be as shown in Figure 2-30.

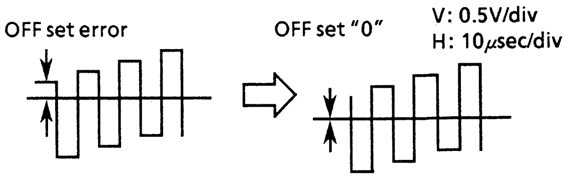


Figure 2-30.

Adjustment of SECAM R-Y demodulation

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field SECAM colour bar (1.0Vp-p)
Test point	TP2604 (Signal), TP2606 (GND)
Control	T2605 SECAM R-Y Demodulation
Specification	———

1. Feed the SECAM colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to MESECAM position.
3. Connect an oscilloscope to test points TP2604 (Sig.) ~TP2606 (GND).
4. Adjust T2605 so that the waveform on the oscilloscope screen be as shown in Figure 2-31.

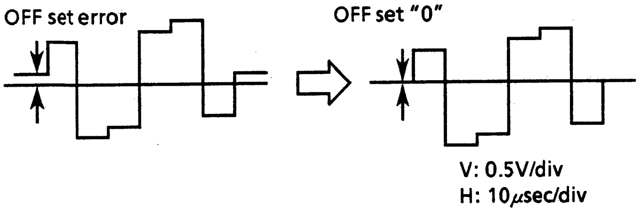


Figure 2-31.

Adjustment of SECAM ID demodulation

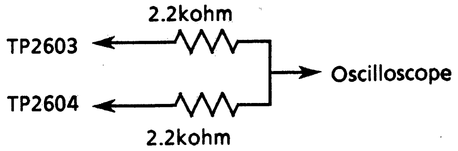
Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field SECAM colour bar (1.0Vp-p)
Test point	TP2608 (Signal), TP2606 (GND)
Control	T2602 SECAM R-Y Demodulation
Specification	DC voltage level is maximum voltage

1. Feed the SECAM colour bar signal to the VIDEO IN jack and put the unit A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to MESECAM position.
3. Connect an oscilloscope to test pints TP2608 (Sig.) ~TP2606 (GND).
4. Adjust T2602 so that the waveform of DC voltage level is becomes maximum voltage.

Adjustment of PAL 1H D.L. PHASE and 1H D.L. AMP.

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field PAL colour bar (1.0Vp-p)
Test point	TP2603 (Signal), TP2604 (Signal),
Control	T2603 PAL 1H D.L. PHASE control R2635 D. L. level control
Specification	———

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to PAL position.
3. Connect an oscilloscope to TP2603 (Sig.)and TP2604 (Sig.) via a 2.2k ohm resistor.



4. Adjust T2603 and R2635 so that the clearness with in doubled portion of the waveform as shown in Figure 2-32.

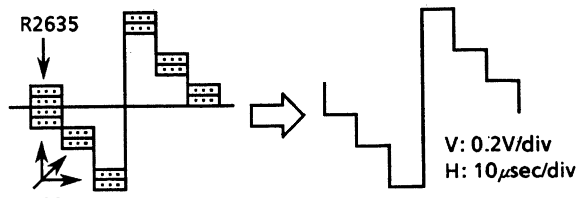


Figure 2-32.

Adjustment of colour level

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field PAL colour bar (1.0Vp-p)
Test point	TP2604 (Signal), TP2606 (GND)
Control	R2640 Colour level control
Specification	1.4 ± 0.1VP-P

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to PAL position.
3. Connect an oscilloscope to TP2604 (Sig.) and TP2606 (GND).
4. Adjust R2640 so that the signal amplitude is 1.4 ± 0.1Vp-p.

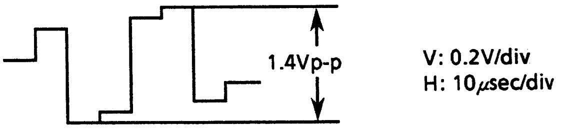


Figure 2-33.

Adjustment of colour tint

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field NTSC colour bar (1.0Vp-p)
Test point	TP2603 (Signal), TP2606 (GND)
Control	R2629 Colour tint control
Specification	———

1. Feed the NTSC colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to NTSC position.
3. Connect an oscilloscope to TP2603 (Sig.) and TP2606 (GND).
4. Adjust R2629 so that the waveform on the oscilloscope screen be as shown in Figure 2-34.

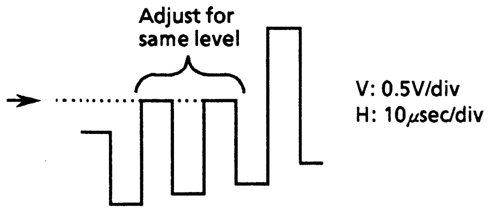


Figure 2-34.

Adjustment of PAL free run frequency

Measuring instrument	Freqeuncy counter
Mode	System conversion mode.
Input signal	Split field NTSC colour bar (1.0Vp-p)
Test point	TP2702 (Signal), TP2701 (GND)
Control	C2706 PAL fsc control
Specification	17.734476MHz ± 50Hz

1. Feed the NTSC colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to AUTO or NTSC position and REC (OUT) switch to PAL position.
3. Connect an oscilloscope to TP2702 (Sig.) and TP2701 (GND.). (See note below.)
4. Adjust C2706 so that the frequency counter reading is 17.734476MHz ± 50Hz.

Note:
For this check, it is necessary use a high impedance probe whose input impedance is more than 1000M ohm.

Adjustment of NTSC free run freqency

Measuring instrument	Freqeuncy counter
Mode	System conversion mode.
Input signal	Split field PAL colour bar (1.0Vp-p)
Test point	TP2702 (Signal), TP2701 (GND)
Control	C2702 NTSC fsc control
Specification	14.318180MHz ± 50Hz

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to NTSC position.
3. Connect an oscilloscope to TP2702 (Sig.) and TP2701 (GND.). (See note below.)
4. Adjust C2702 so that the frequency counter reading is 14.318180MHz ± 50Hz.

Note:
For this check, it is necessary use a high impedance probe whose input impedance is more than 1000M ohm.

Adjustment of B-Y, R-Y input level

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field PAL colour bar (1.0Vp-p)
Test point	TP5701 (B-Y, Sig), TP2705 (R-Y, Sig), TP2709 (GND)
Control	R5701 B-Y control, R5702 R-Y control
Specification	B-Y 0.4 ± 0.02Vp-p, R-Y 0.4 ± 0.02Vp-p

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to NTSC position.
3. Connect an oscilloscope to TP2704 (B-Y Sig.), TP2705 (R-Y Sig.) and TP2701 (GND.).
4. Adjust R2731 to B-Y, adjust R2730 to R-Y so that the waveform on the oscilloscope screen be as shown in Figure 2-35.

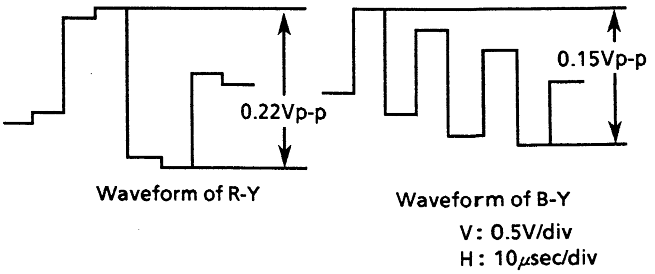


Figure 2-35.

Adjustment of burst level

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field NTSC and PAL colour bar (1.0Vp-p)
Test point	TP2706 (Burst flag pulse blue signal.) TP2707 (Burst flag pulse red signal.) TP2709 (GND)
Control	R2725 B-Y BURST control R2723 R-Y BURST control R2728 NTSC BURST control
Specification	B-Y BURST 2.0 ± 0.1Vp-p R-Y BURST 2.0 ± 0.1Vp-p NTSC BURST 2.1 ± 0.1Vp-p

1. Feed the NTSC colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to AUTO or NTSC position and REC (OUT) switch to PAL position.
3. Connect an oscilloscope to TP2706 (BFPB Sig.) and TP2709 (GND.).
4. Adjust R2725 so that the B-Y BURST level is 2.0 ± 0.1Vp-p.
5. Next connect an oscilloscope to TP2707 (BFPR Sig.) and TP2709 (GND.).
6. Next feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
7. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to NTSC position.
8. Connect an oscilloscope to TP2706 (BFPB Sig.) and TP2709 (GND.).
9. Adjust R2728 so that the NTSC BURST level is 2.1 ± 0.1Vp-p.

Adjustment of P-IN-P, colour and tint level

Measuring instrument	Monitor TV
Mode	System conversion mode.
Input signal	Split field PAL and NTSC colour bar (1.0Vp-p)
Cassette	PAL alignment tape (VROCPSV) NTSC alignment tape (VROATSV)
Control	C2719 PAL P-IN-P TINT control C2721 NTSC P-IN-P TINT control
Specification	———

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Insert the PAL system alignment tape (VROCPSV) and put the unit in the playback mode.
3. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to PAL position.
4. Set the unit to the P-IN-P mode.
5. Adjust C2719 so that the colour contrast of small picture is maximum.
   NEXT: When the turn C2719 clockwise and counter clockwise, observed is colour contrast minimized portion two points, Stop adjusting the C2719 the center position of colour contrast minimized portion two points.
6. Feed the NTSC colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
7. Insert the NTSC system alignment tape (VROATSV) and put the unit in the playback mode.
8. Set the PLAY (IN) switch to AUTO or NTSC position and REC (OUT) switch to NTSC position.
9. Set the unit to the P-IN-P mode, and small picture is play its moveing picture.
10. Adjust C2721 so that the moveing picture of small picture is fresh colour.

Adjustment of SECAM B-Y, R-Y input level

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field PAL colour bar (1.0Vp-p)
Test point	TP5701 (B-Y, R-Y Sig), TP2709 (GND)
Control	R5701 B-Y control, R5702 R-Y control
Specification	B-Y 0.4 ± 0.02Vp-p, R-Y 0.4 ± 0.02Vp-p

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to MESECAM position.
3. Connect an oscilloscope to TP5701 (B-Y, R-Y Sig.), and TP2709 (GND.).
4. Adjust R5701 to B-Y, adjust R5702 to R-Y so that the waveform on the oscilloscope screen be as shown in Figure 2-36.

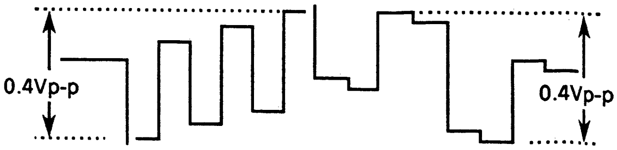


Figure 2-36.

Adjustment of SECAM bell filter

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field PAL colour bar (1.0Vp-p)
Test point	TP5702 (SECAM CHROMA Sig) TP2709 (GND)
Control	FL5702 bell filter
Specification	———

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to MESECAM position.
3. Connect an oscilloscope to TP5702 (SECAM CHROMA Sig) and TP2709 (GND).
4. Adjust FL5702 so that the waveform on the oscilloscope screen be as shown in Figure 2-37.

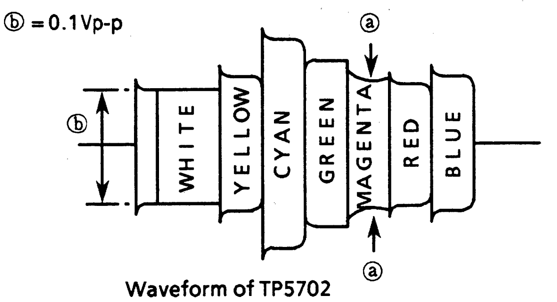


Figure 2-37.

Adjustment of SECAM CHROMA level

Measuring instrument	Oscilloscope
Mode	System conversion mode.
Input signal	Split field PAL colour bar (1.0Vp-p)
Test point	TP5702 (SECAM CHROMA Sig) TP2709 (GND)
Control	R5709 SECAM CHROMA level
Specification	ID level ⓑ = 0.1 ± 0.01Vp-p

1. Feed the PAL colour bar signal to the VIDEO IN jack and put the unit in A/V mode by selecting channel A/V.
2. Set the PLAY (IN) switch to AUTO or PAL position and REC (OUT) switch to MESECAM position.
3. Connect an oscilloscope to TP5702 (SECAM CHROMA Sig) and TP2709 (GND).
4. Adjust R5709 so that the waveform on the oscilloscope screen be as shown in Figure 2-37.

■ ADJUSTMENT OF Hi-Fi / LINER AUDIO CIRCUIT

- Test Points Layout

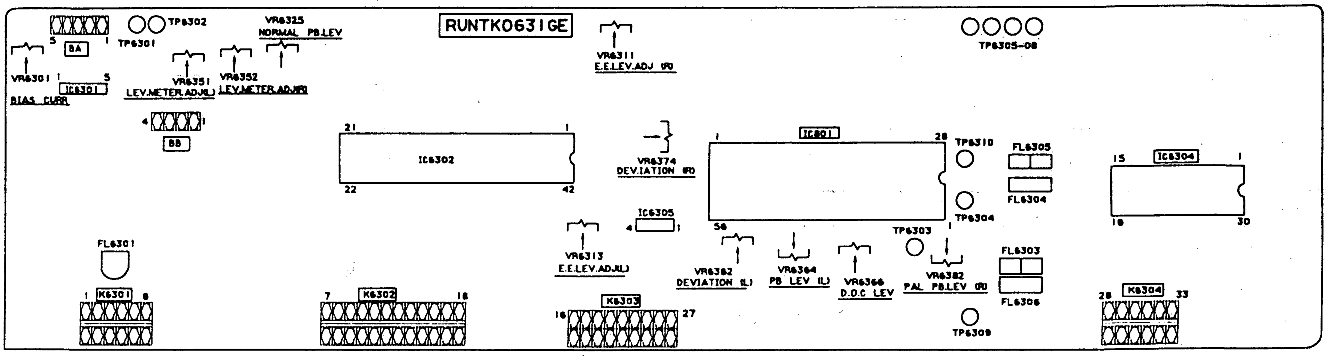

RUNTK0631GE
TP6302
TP6301
BA
5
1
VR6301
BIAS CURR
IC6301
VR6325
NORMAL PB.LEV
VR6351
LEV.METER.ADJ(L)
VR6352
LEV.METER.ADJ(R)
BB
4
VR6311
E.E.LEV.ADJ (R)
IC6302
21
22
42
VR6374
DEV.IATION (R)
IC6305
VR6313
E.E.LEV.ADJ(L)
IC801
28
56
VR6362
DEVIATION (L)
VR6364
PB LEV (L)
VR6366
D.O.C LEV
TP6303
VR6382
PAL PB.LEV (R)
TP6310
TP6304
TP6309
TP6305-08
FL6305
FL6304
FL6303
FL6306
IC6304
15
16
30
FL6301
K6301
6
K6302
7
18
K6303
16
27
K6304
28
33

Figure 2-38. Hi-Fi PWB

(The items in brackets [ ] refer to R-CH parts.)
Adjustment of EE level

Measuring instrument	VTVM
Mode	EE (PAL)
Input signal	– 8dBs, 1kHz
Test point	Audio output terminal
Adjusting point	R6313 [R6311]
Specification	– 8dBs

1. Turn the input selector switch to "AUX".
2. Set the ATT. SW to the OFF position.
3. Input – 8dBs, 1kHz signal to audio input terminal.
4. Connect CH-1 of an VTVM to the left of the audio output terminal, CH-2 to the right of the audio output terminal and adjust R6313 [R6311] so that the reading of the VTVM becomes – 8dBs, 1kHz.
   Note:
   Both R6313 and R6311 are located on the opration unit. Adjustment of deviation.

Adjustment of deviation
(Adjustment by using a spectrum-analyser)

Measuring instrument	Spectrum-analyser
Mode	REC (PAL)
Input signal	– 8dBs, 1kHz
Test point	TP6309 [TP6310] TP6306 (GND)
Adjusting point	R6362 [R6374] (deviation control)
Specification	50 ± 5kHz

1. Feed – 8dBs, 1kHz signal to the audio input terminal.
2. Observe TP6309 [TP6310] (Hi-Fi unit) and TP6306 (GND) signals by the spectrum-analyser, and adjust R6362 [R6374] so that the spectrum-analyser reads 50 ± 5kHz. (as shown in Figure 2-39)

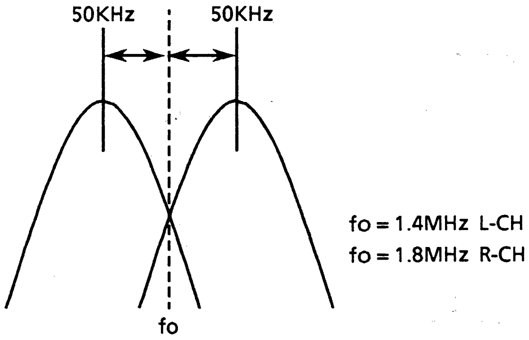

50KHz
50KHz
fo = 1.4MHz L-CH
fo = 1.8MHz R-CH
fo

Figure 2-39.

(Adjustment by using a frequency counter and an VTVM)

Measuring instrument	Frequency counter, VTVM
Mode	Recording / Playback
Tape used	Hi-Fi alignment tape (VROCBFFS)
Input signal	– 8dBs, 1kHz
Test point	TP6309 [TP6310] TP6306 (GND) (Audio output Terminal)
Adjusting point	R6362 [R6374]
Specification	– 8 ± 1dBs

1. Play back the Hi-Fi alignment tape (VROCBFFS) and check that the playback level is – 8 ± 1dBs.
2. Check the carrier frequency: connect a frequency counter to TP6309 [TP6310] and TP6306 (GND) check that the reading is 1.4 MHz ± 10kHz [1.8MHz ± 10kHz].
3. Input – 8dBs, 1kHz signal to the audio line input terminal.
4. Set the ATT. SW to the OFF position.
5. Record the signal and play it back. If the playback level is less than – 8 ± 1dBs, turn R6362 [R6374] clockwise; if more than – 8 ± 1dBs, turn it counterclockwise. Record the signal and play it back again.
6. Repeat Step 5 until you obtain a reading of – 8 dBs ± 1dBs.

Adjustment of drop out level

Measuring instrument	VTVM
Mode	Playback (PAL)
Input signal	————
Test point	TP6303, TP6306 (GND)
Adjusting point	R6366 (drop out level control)
Specification	3.8 ± 0.1V

1. Put the set in playback mode.
2. Connect an VTVM to TP6303 and TP6306, and adjust R6366 (drop out level) so that output available on the oscilloscope is 3.8V ± 0.1V.

Adjustment of playback switching point

Measuring instrument	Oscilloscope
Mode	Playback (PAL)
Tape used	Hi-Fi alignment tape VROCBFFS PAL VROATFPS NTSC
Test point	TP6305, TP6307 External trigger TP6307
Adjusting point	R7821 (50Hz A.H.SW. Point)
Specification	200 ± 50 μsec.

1. Connect the oscilloscope's CH1 to TP6305 and its CH2 to TP6307. Connect the external trigger to TP2 (Main PWB).
2. Short out between TP6306 and TP6308. Both TP6306 and TP6308 are located in the Hi-Fi module unit.
3. Play back the standard HiFi tape (VROCBFFS). Externally trigger the circuitry. Observe the output at TP6305 and TP6307 at the same time on the oscilloscope screen.
4. Adjust R7821 (50Hz A.H.SW. Point control) so that the weveform on the oscilloscope screen be as shown in Figure 2-40.
5. Set the oscilloscope to TRIG slope (–) and make sure the envelope is not interrupted.
6. Remove the shorting jumper between TP6306 and TP6308.
7. For the NTSC mode (VROATFPS), take the same steps as above. Note that the specification is 200 ± 80 μsec.

Notes:

1. Before making this adjustment, make sure that the video playback switching point has been accurately adjusted. Be sure to make this adjustment when this switching point has been adjusted.
   If the measurement is out of specification, readjust the playback switching point to the 6.5 ± 0.5H range.
2. Make this adjustment just after the A/C head height and azimuth have been adjusted. It is acceptable that the envelope is 200 ± 50 μsec ahead of the leading edge of the head switching pulse signal at TP6307.

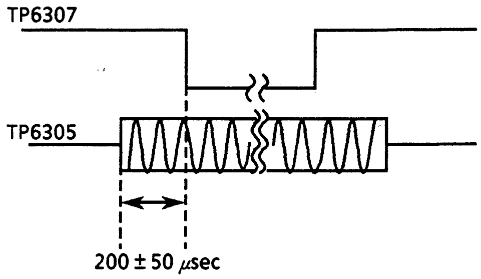


Figure 2-40.

Adjustment of Hi-Fi playback level

Measuring instrument	VTVM
Mode	Playback (PAL / NTSC)
Tape used	Hi-Fi alignment tape (VROCBFFS) (PAL) (VROATFPS) (NTSC)
Input signal	————
Test point	Audio line output terminal (L, R)
Adjusting point	R6364 [R6382] (playback level control)
Specification	– 8dBs ± 1dBs

1. Playback the Hi-Fi alignment tape.
2. Connect CH-1 of an VTVM at the audio line output terminal (L), CH-2 of an VTVM at the audio output terminal (R) and then set the audio output select to Hi-Fi and stereo.
3. Adjust R6364 [R6382] to the point at which the playback level is – 8dBs ± 1dBs.

Adjustment of level meter

Measuring instrument	Level meter
Mode	EE (PAL)
Input signal	– 8dBs, 1kHz
Test point	Level meter
Adjusting point	R6351 [R6352]
Specification	0dB Lights

1. Input –8dBs, 1kHz audio oscillator signal to the audio line input terminal.
2. Set the audio input switch to external.
3. Audio output switch should be set to stereo position.
4. Adjust R6351 [R6352] so that the level meter lights as for as the 0 dB point.
5. Then, receive a monaural signal, and adjust R6352 so that the input levels of both L-CH and R-CH become the same.

Adjustment of playback level

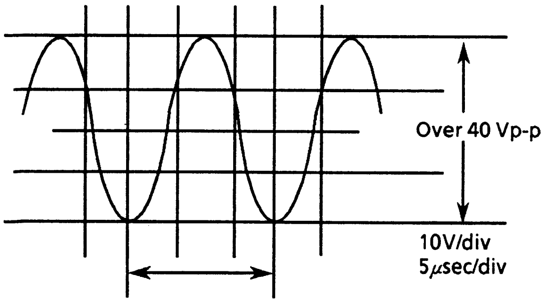
Measuring instrument	VTVM
Mode	Playback (PAL)
Input signal	Alignment tape (VROCPSV) (1kHz level control signal)
Test point	Audio output terminal
Adjusting point	R6325 (playback level control)
Specification	– 12 ± 1dBs (L-ch side)

1. Play back the alignement tape (1kHz level control signal).
2. Hook up the VTVM to the audio output terminal.
3. Adjust R6325 (playback level control) so that the output level be –12 ± 1dBs.

Checking of erase voltage and oscillation frequency

Measuring instrument	Oscilloscope
Mode	Recording (PAL)
Input signal	————————
Test point	Both ends of the full-erase head
Adjusting point	————————
Specification	Erase voltage; Over40Vp-p Oscillation frequency; 70 ± 10kHz

1. Place the unit to the record mode.
2. Hook up the oscilloscope to both ends of the full-erase head.
3. Make surethe erase voltage is over 40 Vp-p.
4. Be sure that the oscillation frequency is 70 ± 10kHz.



60kHz to 80kHz about three divisions

Figure 2-41.

Adjustment of bias current

Measuring instrument	VTVM
Mode	Recording (PAL)
Input signal	————————
Test point	TP6301 (SIG), TP6302 (GND)
Adjusting point	R6301 (bias current control)
Specification	260 ± 10μA (2.6mV ± 0.1mV)

1. Connect the VTVM TO TP601 (SIG) and TP602 (GND) on the main unit.
2. Place the unit to the record mode.
3. Adjust R6301 (bias current control) so that the bias current be 260 ± 10μA (2.6 ± 0.1mV).

Checking of bias leak

Measuring instrument	VTVM
Mode	Recording (PAL / NTSC)
Input signal	————————
Test point	Audio output terminal
Adjusting point	————————
Specification	Less than –20dBm

1. Place the unit to the record mode.
2. Connect the VTVM to the audio output terminal.
3. Make sure the bias leak is below –20dBm.

Checking of recording /playback levels

Measuring instrument	VTVM
Mode	Self-recording/playback PAL / NTSC
Input signal	–8dBs, 1kHz
Test point	Audio output terminal
Adjusting point	————————
Specification	–8 ± 2dBs

1. Feed 1kHz, –8dBs signal to the audio input terminal. Make self-recording and playback of the signal.

   Note:

   For Hi-Fi recording, feed the signal to the left and right channels at the same time.
2. Make sure the output at the audio output terminals is –8 ± 2dBs for playback mode.
3. If out of spec, readjust the erase voltage, oscillation Frequency and the bias current.

ADJUSTMENT OF IF CIRCUIT

Adjustment of RF AGC

Measuring instrument	Oscilloscope Signal generator
Mode	————————
Input signal	Colour bar signal
Test point	Video output terminal
Adjusting point	VR001 (on IF pack)

1. Receive the colour bar signal (input field strength: 80 dBμ).
2. Observe the video output terminal waveform on the oscilloscope. Adjust VR001 (on IF pack) in the IF pack until the noise disappers from the oscilloscope screen.

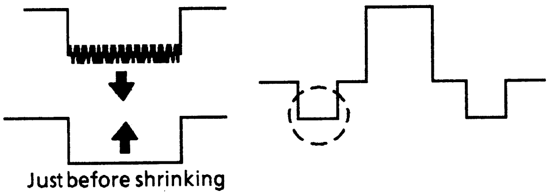


Figure 2-42.

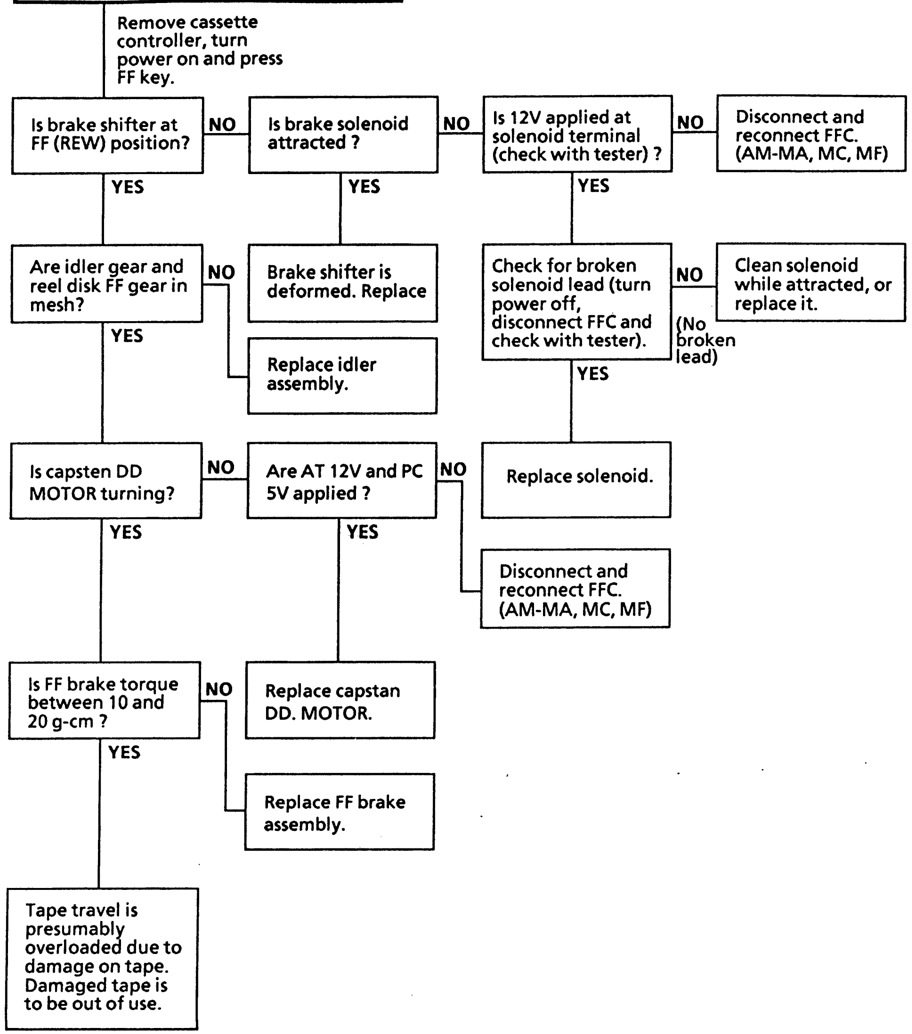
Adjustment of AFT

Measuring instrument	Oscilloscope Signal generator
Mode	————————
Input signal	PIF frequency uniwave (38.9 MHz ± 1kHz) Colour bar signal (70 dBμ)
Test point	Video output terminal
Adjusting point	T002 (AFT coil)
Specification	————————

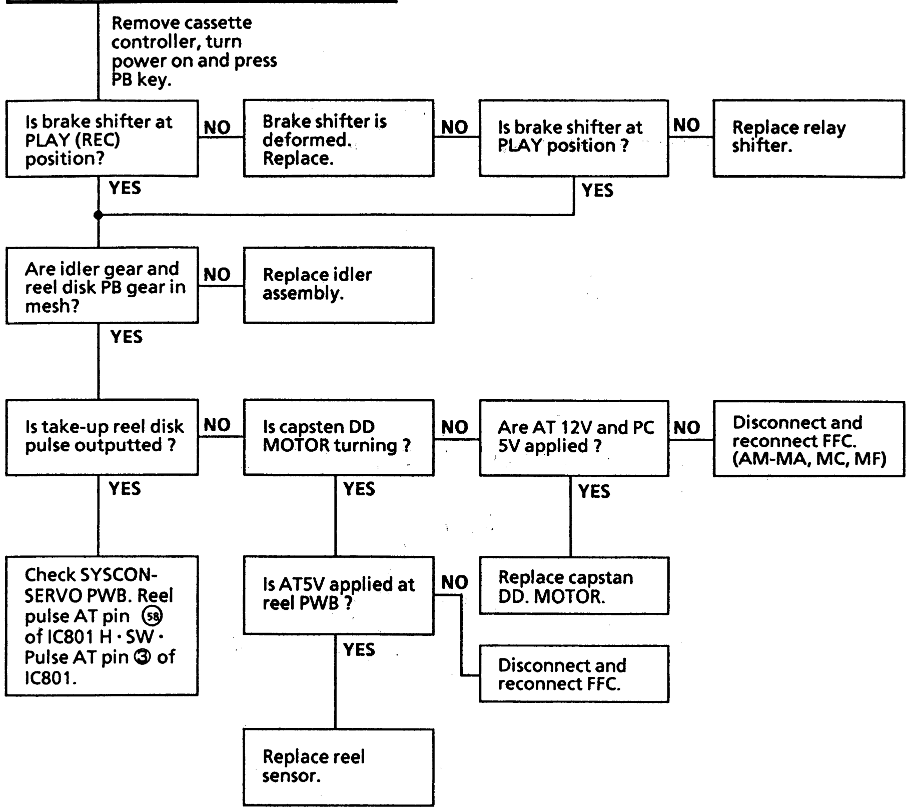
1. Receive the colour bar signal (input field strength: 70 dBμ).
2. First set the band selector switch to VHF or UHF Position.
   Using the signal generator, feed the 38.9MHz PIF frequency signal (sine wave) to the tuner IF output terminal.
   Use the (–) and (+) keys so that the video output terminal waveform be minimum.
3. Set the band selector switch normal position.
4. Using the signal generator, feed the 38.9MHz ± 1kHz PIF frequency signal (sine wave) to the tuner IF output terminal.
   (Adjust the attenuator to attenuate the input signal down to an appropriate level).
5. Adjust T002 (AFT coil) in the IF pack so that the video output terminal waveform be minimum.

MECHANISM TROUBLESHOOTING

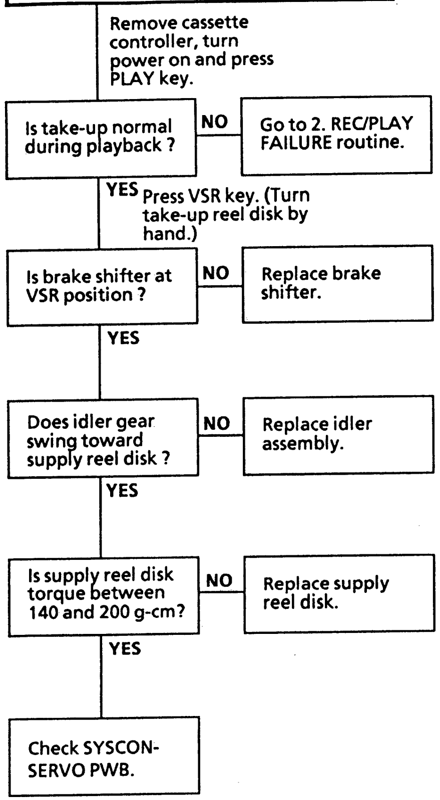
1. FF/REW FAILURE (NO TAPE WINDING)


Remove cassette controller, turn power on and press FF key.
Is brake shifter at FF (REW) position?
NO
Is brake solenoid attracted ?
NO
Is 12V applied at solenoid terminal (check with tester) ?
NO
Disconnect and reconnect FFC. (AM-MA, MC, MF)
YES
YES
YES
Are idler gear and reel disk FF gear in mesh?
NO
Brake shifter is deformed. Replace
Check for broken solenoid lead (turn power off, disconnect FFC and check with tester).
NO
Clean solenoid while attracted, or replace it.
(No broken lead)
YES
Replace idler assembly.
YES
Is capstan DD MOTOR turning?
NO
Are AT 12V and PC 5V applied ?
NO
Replace solenoid.
YES
YES
Disconnect and reconnect FFC. (AM-MA, MC, MF)
Is FF brake torque between 10 and 20 g-cm ?
NO
Replace capstan DD. MOTOR.
YES
Replace FF brake assembly.
Tape travel is presumably overloaded due to damage on tape. Damaged tape is to be out of use.

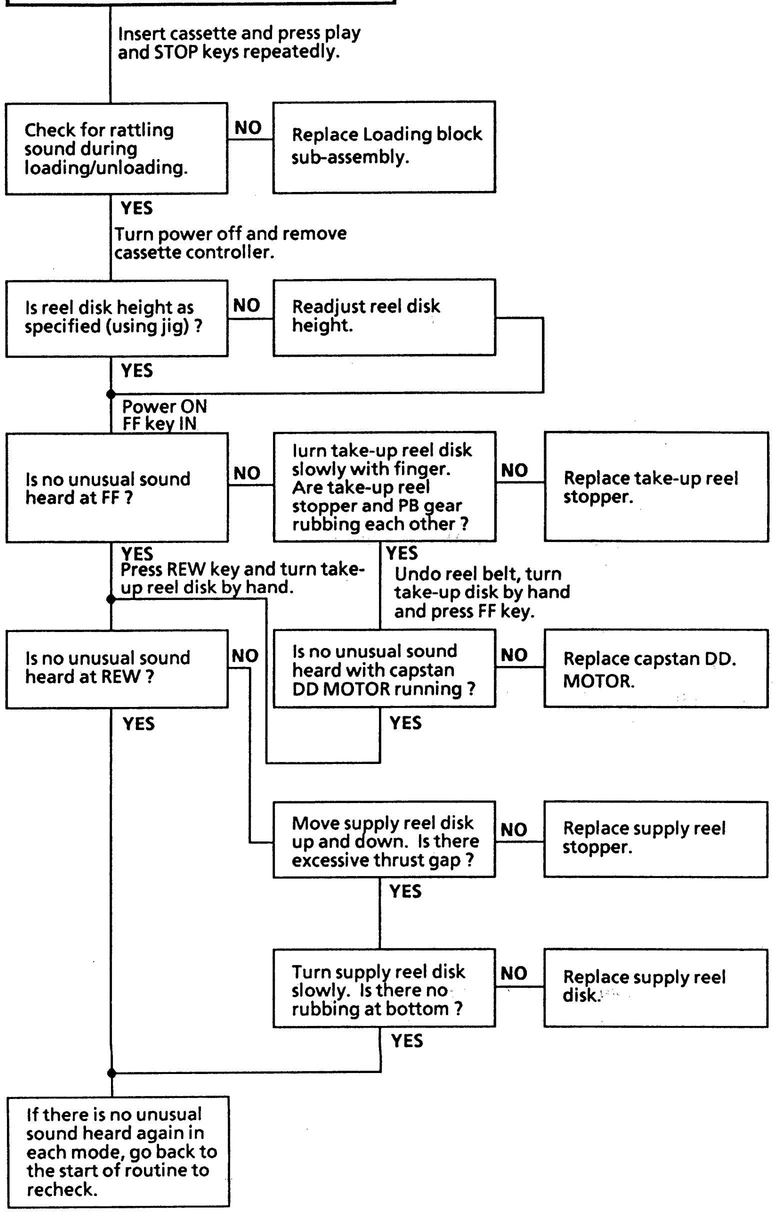
2. REC/PLAY FAILURE (MODE RELEASE)


Remove cassette controller, turn power on and press PB key.
Is brake shifter at PLAY (REC) position?
NO
Brake shifter is deformed. Replace.
NO
Is brake shifter at PLAY position ?
NO
Replace relay shifter.
YES
YES
Are idler gear and reel disk PB gear in mesh?
NO
Replace idler assembly.
YES
Is take-up reel disk pulse outputted ?
NO
Is capsten DD MOTOR turning ?
NO
Are AT 12V and PC 5V applied ?
NO
Disconnect and reconnect FFC. (AM-MA, MC, MF)
YES
YES
YES
Check SYSCON-SERVO PWB. Reel pulse AT pin (58) of IC801 H · SW · Pulse AT pin ③ of IC801.
Is AT5V applied at reel PWB ?
NO
Replace capstan DD. MOTOR.
YES
Disconnect and reconnect FFC.
Replace reel sensor.

3. WINDING FAILURE AT VSR

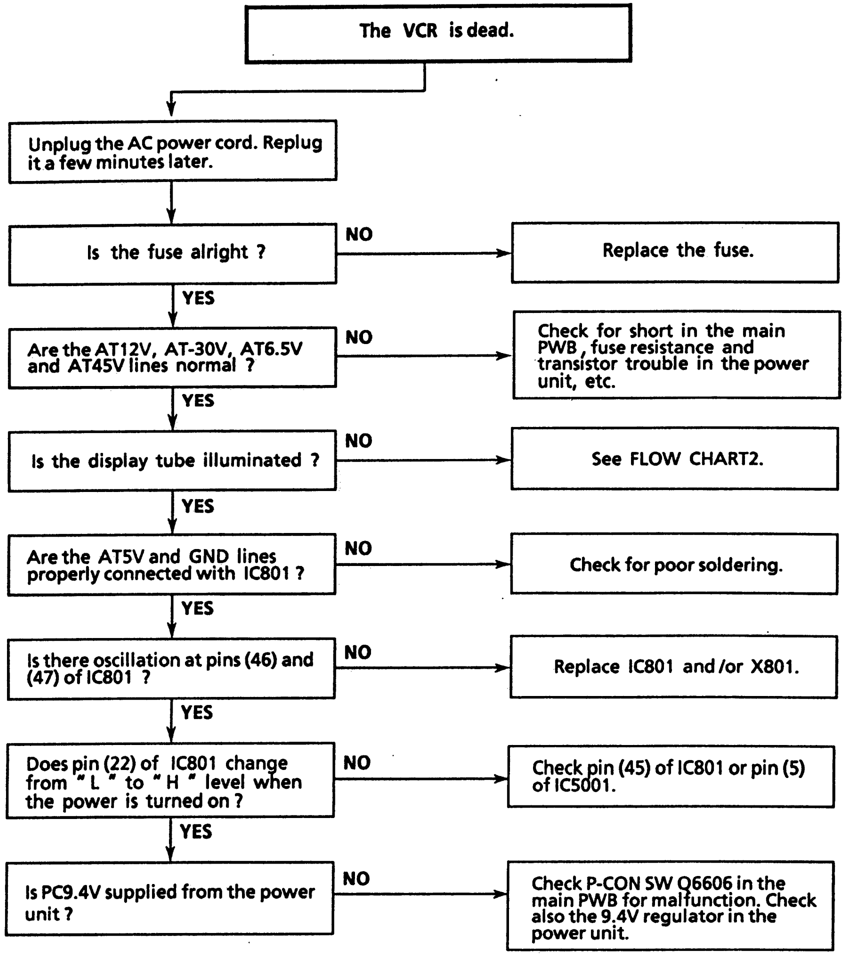

Remove cassette controller, turn power on and press PLAY key.
Is take-up normal during playback ?
NO
Go to 2. REC/PLAY FAILURE routine.
YES
Press VSR key. (Turn take-up reel disk by hand.)
Is brake shifter at VSR position ?
NO
Replace brake shifter.
YES
Does idler gear swing toward supply reel disk ?
NO
Replace idler assembly.
YES
Is supply reel disk torque between 140 and 200 g-cm?
NO
Replace supply reel disk.
YES
Check SYSCON-SERVO PWB.

4. UNUSUAL SOUND IN EACH MODE


Insert cassette and press play and STOP keys repeatedly.
Check for rattling sound during loading/unloading.
NO
Replace Loading block sub-assembly.
YES
Turn power off and remove cassette controller.
Is reel disk height as specified (using jig) ?
NO
Readjust reel disk height.
YES
Power ON
FF key IN
Is no unusual sound heard at FF ?
NO
Turn take-up reel disk slowly with finger. Are take-up reel stopper and PB gear rubbing each other ?
NO
Replace take-up reel stopper.
YES
Undo reel belt, turn take-up disk by hand and press FF key.
YES
Press REW key and turn take-up reel disk by hand.
Is no unusual sound heard at REW ?
NO
Is no unusual sound heard with capstan DD MOTOR running ?
NO
Replace capstan DD. MOTOR.
YES
YES
Move supply reel disk up and down. Is there excessive thrust gap ?
NO
Replace supply reel stopper.
YES
Turn supply reel disk slowly. Is there no rubbing at bottom ?
NO
Replace supply reel disk.
YES
If there is no unusual sound heard again in each mode, go back to the start of routine to recheck.

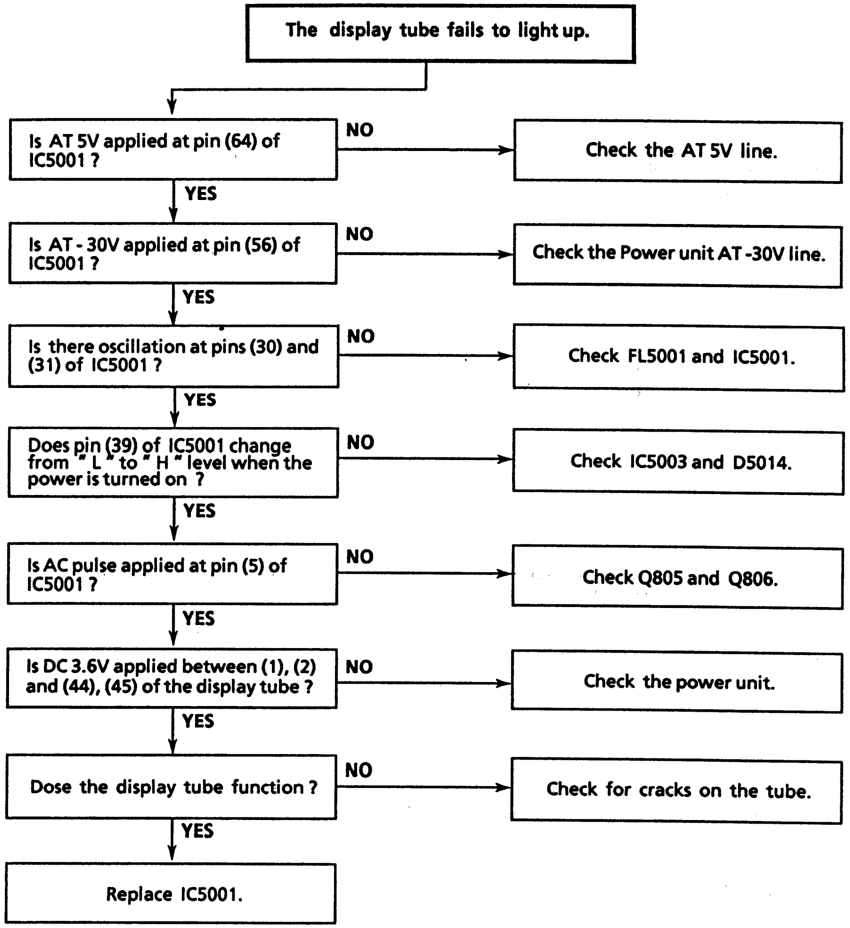
POWER TROUBLESHOOTING

FLOW CHART NO. 1


The VCR is dead.
Unplug the AC power cord. Replug it a few minutes later.
Is the fuse alright ?
NO
Replace the fuse.
YES
Are the AT12V, AT-30V, AT6.5V and AT45V lines normal ?
NO
Check for short in the main PWB, fuse resistance and transistor trouble in the power unit, etc.
YES
Is the display tube illuminated ?
NO
See FLOW CHART2.
YES
Are the AT5V and GND lines properly connected with IC801 ?
NO
Check for poor soldering.
YES
Is there oscillation at pins (46) and (47) of IC801 ?
NO
Replace IC801 and/or X801.
YES
Does pin (22) of IC801 change from "L" to "H" level when the power is turned on ?
NO
Check pin (45) of IC801 or pin (5) of IC5001.
YES
Is PC9.4V supplied from the power unit ?
NO
Check P-CON SW Q6606 in the main PWB for malfunction. Check also the 9.4V regulator in the power unit.

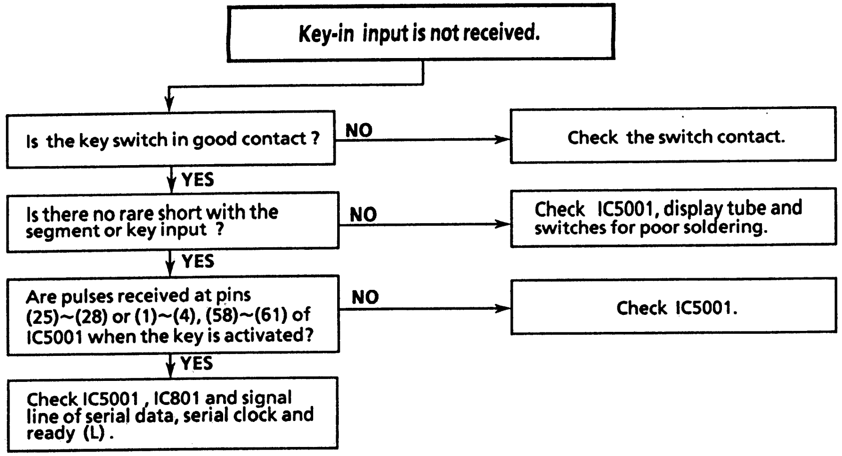
TIMER (1) TROUBLESHOOTING

FLOW CHART NO. 2


The display tube fails to light up.
Is AT 5V applied at pin (64) of IC5001 ?
NO
Check the AT 5V line.
YES
Is AT-30V applied at pin (56) of IC5001 ?
NO
Check the Power unit AT -30V line.
YES
Is there oscillation at pins (30) and (31) of IC5001 ?
NO
Check FL5001 and IC5001.
YES
Does pin (39) of IC5001 change from "L" to "H" level when the power is turned on ?
NO
Check IC5003 and D5014.
YES
Is AC pulse applied at pin (5) of IC5001 ?
NO
Check Q805 and Q806.
YES
Is DC 3.6V applied between (1), (2) and (44), (45) of the display tube ?
NO
Check the power unit.
YES
Dose the display tube function ?
NO
Check for cracks on the tube.
YES
Replace IC5001.

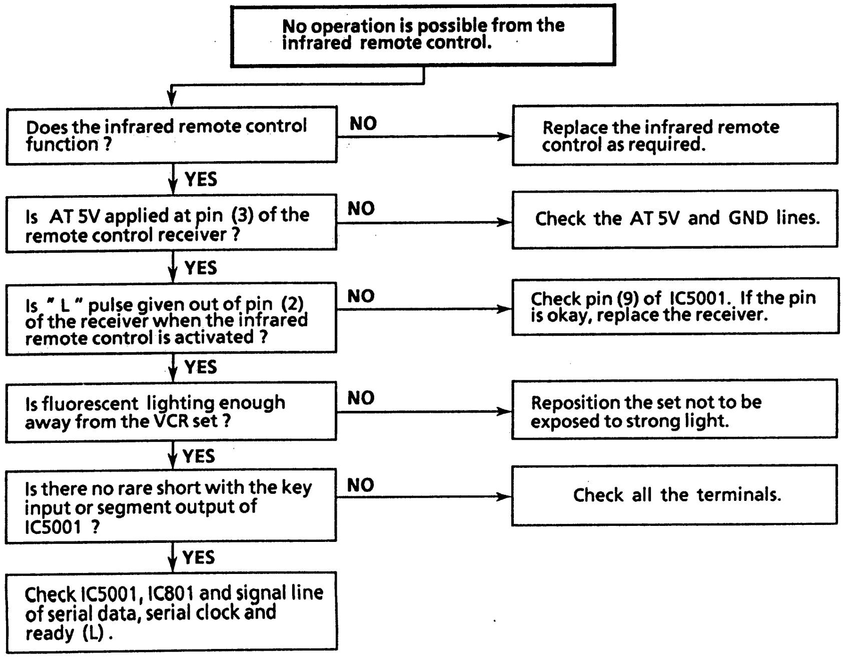
TIMER (2) TROUBLESHOOTING

FLOW CHART NO. 3


Key-in input is not received.
Is the key switch in good contact ?
NO
Check the switch contact.
YES
Is there no rare short with the segment or key input ?
NO
Check IC5001, display tube and switches for poor soldering.
YES
Are pulses received at pins (25)~(28) or (1)~(4), (58)~(61) of IC5001 when the key is activated?
NO
Check IC5001.
YES
Check IC5001, IC801 and signal line of serial data, serial clock and ready (L).

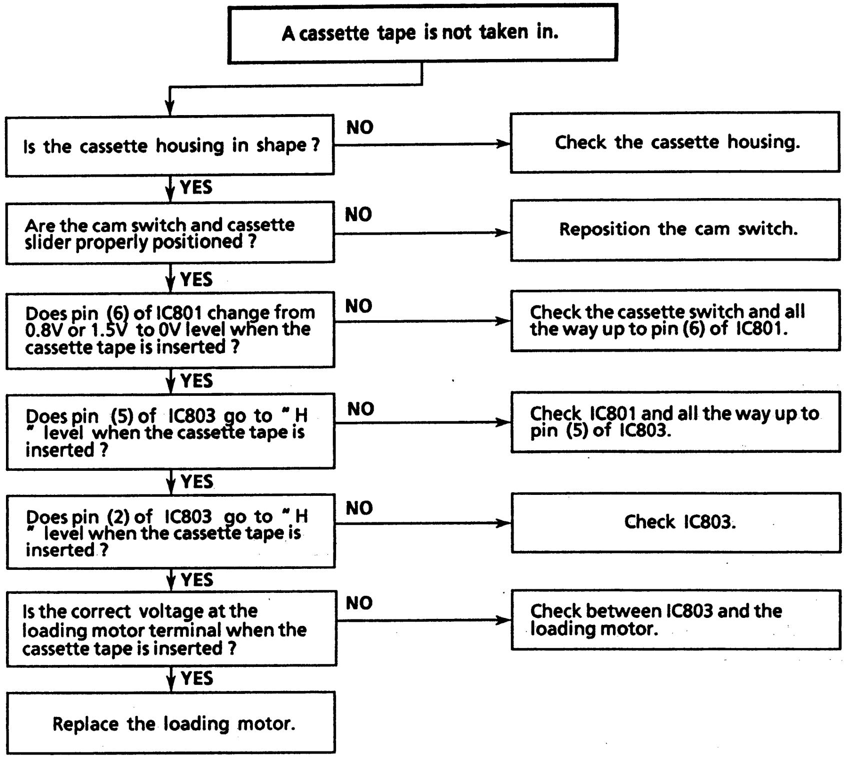
INFRARED R/C TROUBLESHOOTING

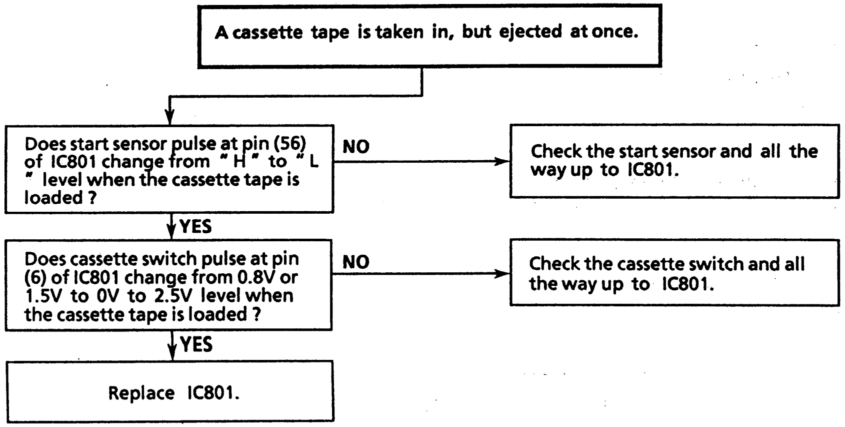
FLOW CHART NO. 4


No operation is possible from the infrared remote control.
Does the infrared remote control function ?
NO
Replace the infrared remote control as required.
YES
Is AT 5V applied at pin (3) of the remote control receiver ?
NO
Check the AT 5V and GND lines.
YES
Is " L " pulse given out of pin (2) of the receiver when the infrared remote control is activated ?
NO
Check pin (9) of IC5001. If the pin is okay, replace the receiver.
YES
Is fluorescent lighting enough away from the VCR set ?
NO
Reposition the set not to be exposed to strong light.
YES
Is there no rare short with the key input or segment output of IC5001 ?
NO
Check all the terminals.
YES
Check IC5001, IC801 and signal line of serial data, serial clock and ready (L).

CASSETTE CONTROL TROUBLESHOOTING

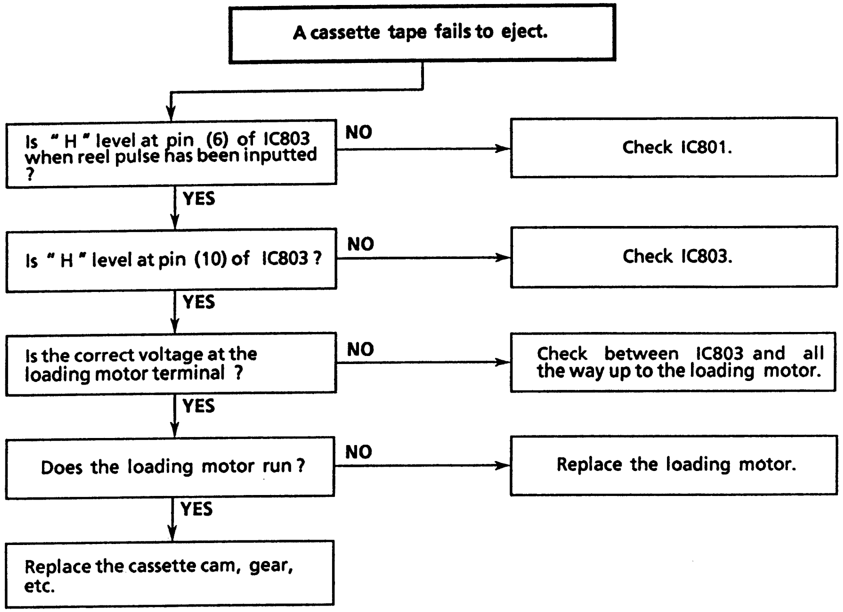
FLOW CHART NO. 5


A cassette tape is not taken in.
Is the cassette housing in shape ?
NO
Check the cassette housing.
YES
Are the cam switch and cassette slider properly positioned ?
NO
Reposition the cam switch.
YES
Does pin (6) of IC801 change from 0.8V or 1.5V to 0V level when the cassette tape is inserted ?
NO
Check the cassette switch and all the way up to pin (6) of IC801.
YES
Does pin (5) of IC803 go to " H " level when the cassette tape is inserted ?
NO
Check IC801 and all the way up to pin (5) of IC803.
YES
Does pin (2) of IC803 go to " H " level when the cassette tape is inserted ?
NO
Check IC803.
YES
Is the correct voltage at the loading motor terminal when the cassette tape is inserted ?
NO
Check between IC803 and the loading motor.
YES
Replace the loading motor.


A cassette tape is taken in, but ejected at once.
Does start sensor pulse at pin (56) of IC801 change from " H " to " L " level when the cassette tape is loaded ?
NO
Check the start sensor and all the way up to IC801.
YES
Does cassette switch pulse at pin (6) of IC801 change from 0.8V or 1.5V to 0V to 2.5V level when the cassette tape is loaded ?
NO
Check the cassette switch and all the way up to IC801.
YES
Replace IC801.

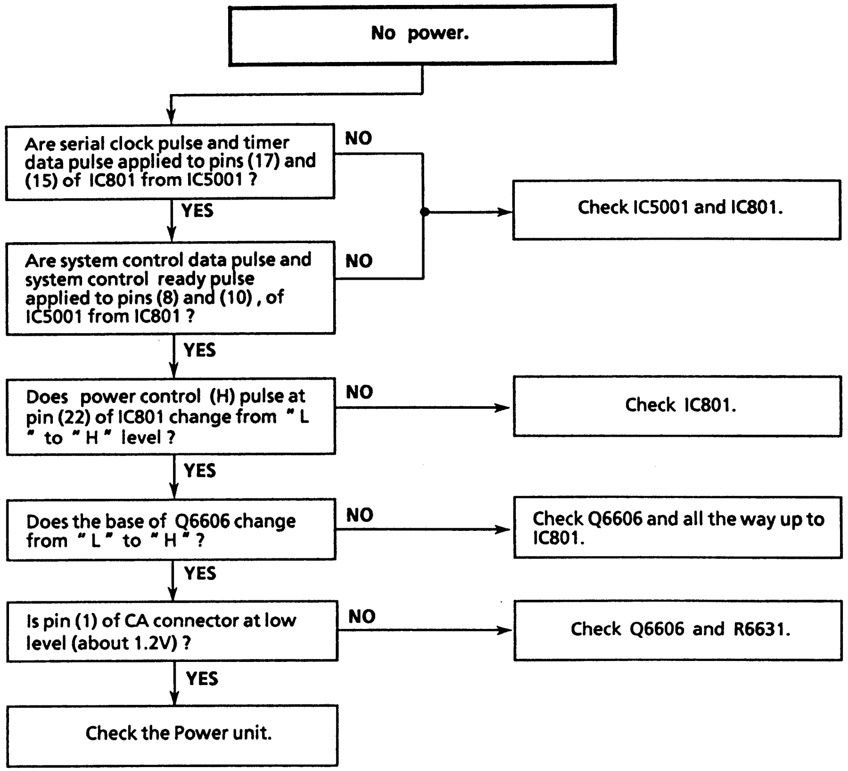
LOADING MOTOR AND EJECT TROUBLESHOOTING

FLOW CHART NO. 6


A cassette tape fails to eject.
Is " H " level at pin (6) of IC803 when reel pulse has been inputted ?
NO
Check IC801.
YES
Is " H " level at pin (10) of IC803 ?
NO
Check IC803.
YES
Is the correct voltage at the loading motor terminal ?
NO
Check between IC803 and all the way up to the loading motor.
YES
Does the loading motor run ?
NO
Replace the loading motor.
YES
Replace the cassette cam, gear, etc.

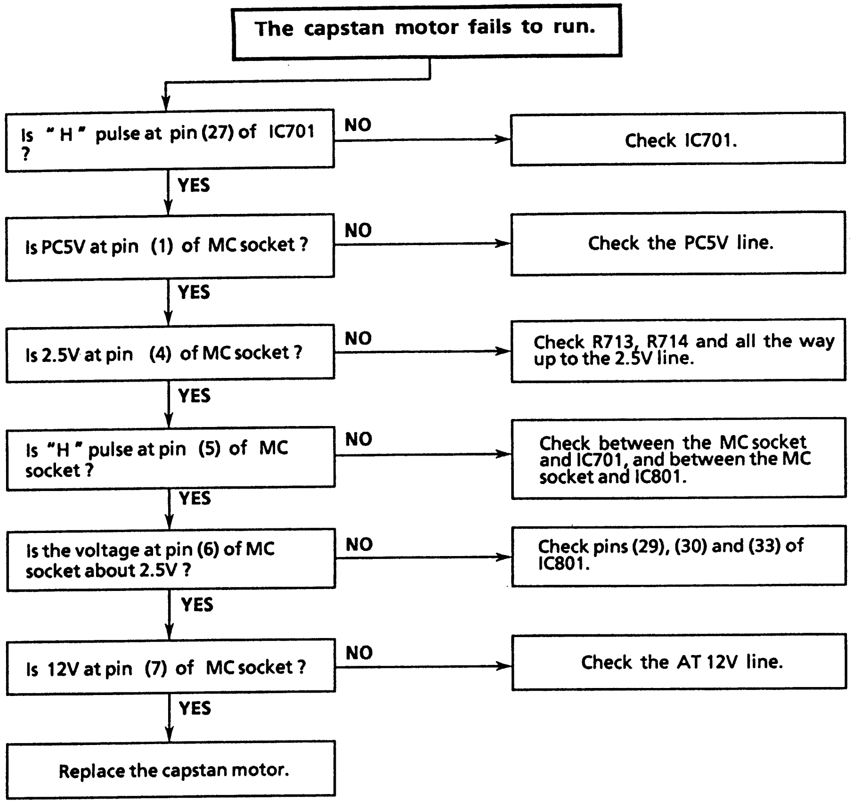
SYSTEM CONTROL TROUBLESHOOTING

FLOW CHART NO. 7


No power.
Are serial clock pulse and timer data pulse applied to pins (17) and (15) of IC801 from IC5001 ?
NO
YES
Are system control data pulse and system control ready pulse applied to pins (8) and (10), of IC5001 from IC801 ?
NO
Check IC5001 and IC801.
YES
Does power control (H) pulse at pin (22) of IC801 change from " L " to " H " level ?
NO
Check IC801.
YES
Does the base of Q6606 change from " L " to " H " ?
NO
Check Q6606 and all the way up to IC801.
YES
Is pin (1) of CA connector at low level (about 1.2V) ?
NO
Check Q6606 and R6631.
YES
Check the Power unit.

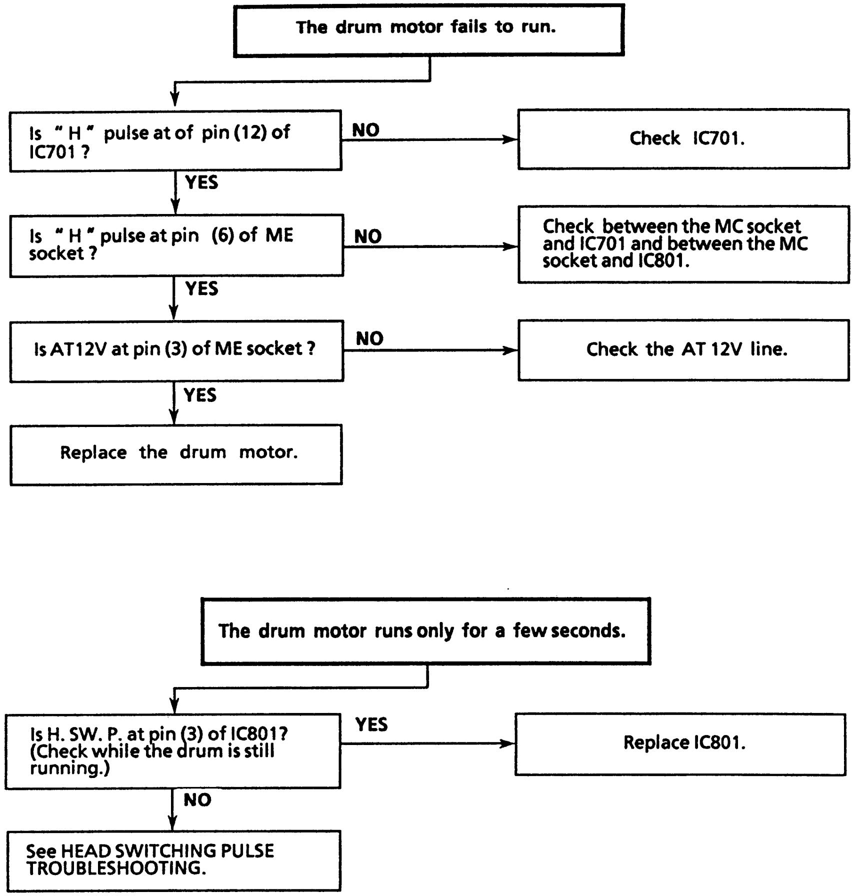
CAPSTAN MOTOR TROUBLESHOOTING

FLOW CHART NO. 8

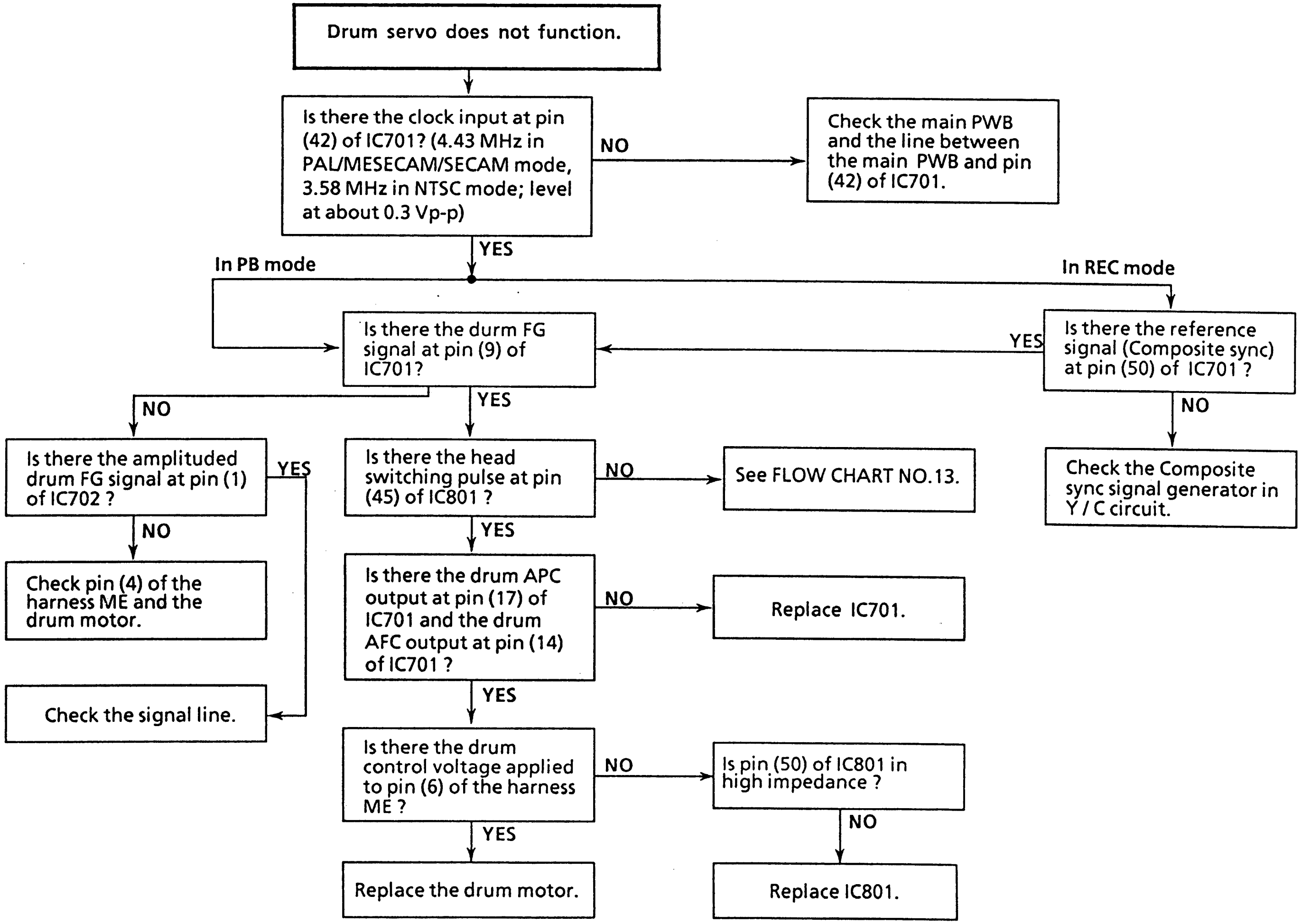

The capstan motor fails to run.
Is "H" pulse at pin (27) of IC701 ?
NO
Check IC701.
YES
Is PC5V at pin (1) of MC socket ?
NO
Check the PC5V line.
YES
Is 2.5V at pin (4) of MC socket ?
NO
Check R713, R714 and all the way up to the 2.5V line.
YES
Is "H" pulse at pin (5) of MC socket ?
NO
Check between the MC socket and IC701, and between the MC socket and IC801.
YES
Is the voltage at pin (6) of MC socket about 2.5V ?
NO
Check pins (29), (30) and (33) of IC801.
YES
Is 12V at pin (7) of MC socket ?
NO
Check the AT 12V line.
YES
Replace the capstan motor.

DRUM MOTOR TROUBLESHOOTING

FLOW CHART NO. 9

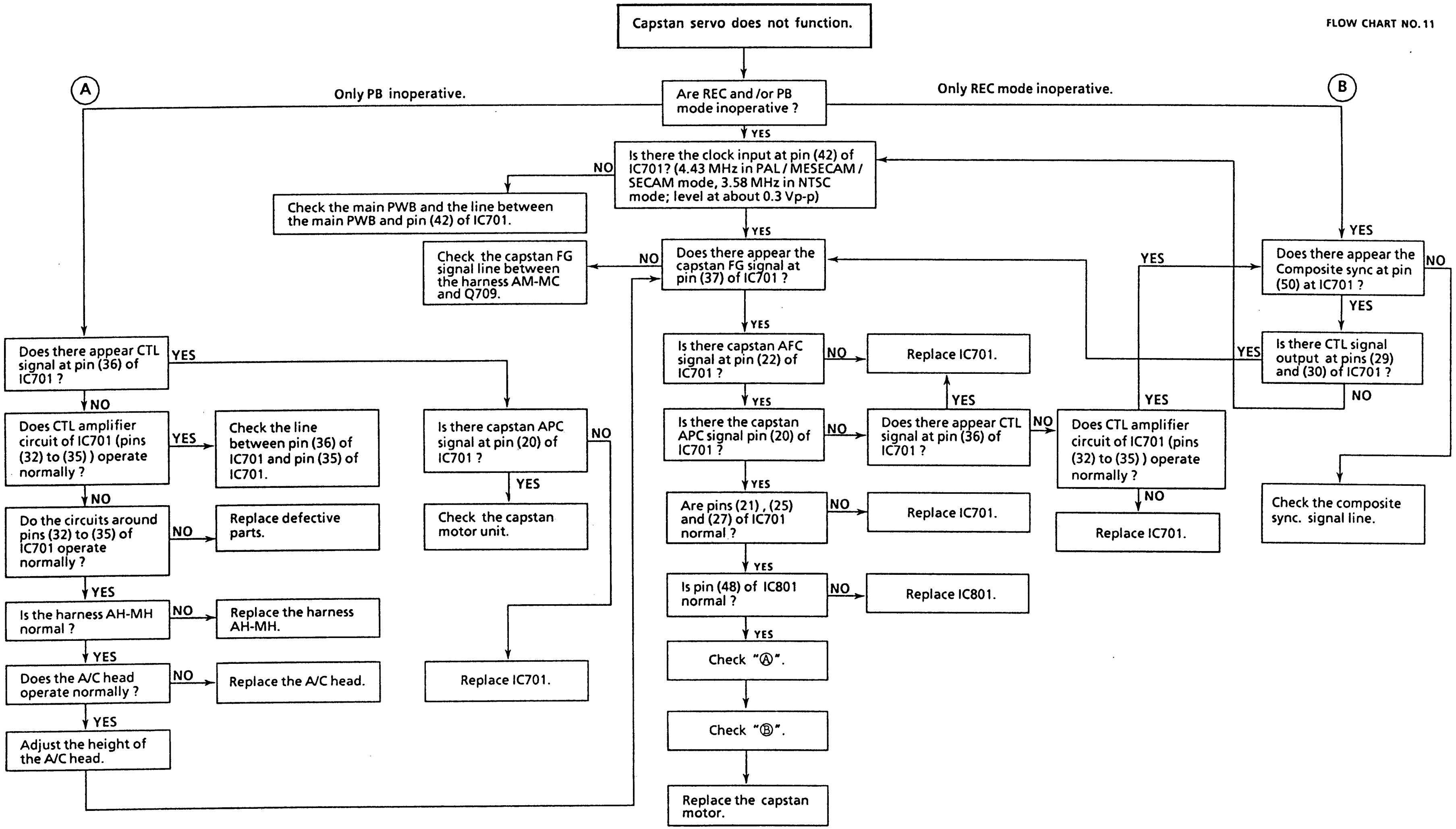

The drum motor fails to run.
Is "H" pulse at of pin (12) of IC701 ?
NO
Check IC701.
YES
Is "H" pulse at pin (6) of ME socket ?
NO
Check between the MC socket and IC701 and between the MC socket and IC801.
YES
Is AT12V at pin (3) of ME socket ?
NO
Check the AT 12V line.
YES
Replace the drum motor.
The drum motor runs only for a few seconds.
Is H. SW. P. at pin (3) of IC801? (Check while the drum is still running.)
YES
Replace IC801.
NO
See HEAD SWITCHING PULSE TROUBLESHOOTING.

DRUM SERVO TROUBLESHOOTING


Drum servo does not function.
Is there the clock input at pin (42) of IC701? (4.43 MHz in PAL/MESECAM/SECAM mode, 3.58 MHz in NTSC mode; level at about 0.3 Vp-p)
NO
Check the main PWB and the line between the main PWB and pin (42) of IC701.
YES
In PB mode
In REC mode
Is there the reference signal (Composite sync) at pin (50) of IC701 ?
YES
NO
Check the Composite sync signal generator in Y / C circuit.
Is there the durm FG signal at pin (9) of IC701?
NO
Is there the amplituded drum FG signal at pin (1) of IC702 ?
YES
NO
Check pin (4) of the harness ME and the drum motor.
Check the signal line.
YES
Is there the head switching pulse at pin (45) of IC801 ?
NO
See FLOW CHART NO.13.
YES
Is there the drum APC output at pin (17) of IC701 and the drum AFC output at pin (14) of IC701 ?
NO
Replace IC701.
YES
Is there the drum control voltage applied to pin (6) of the harness ME ?
NO
Is pin (50) of IC801 in high impedance ?
NO
Replace IC801.
YES
Replace the drum motor.

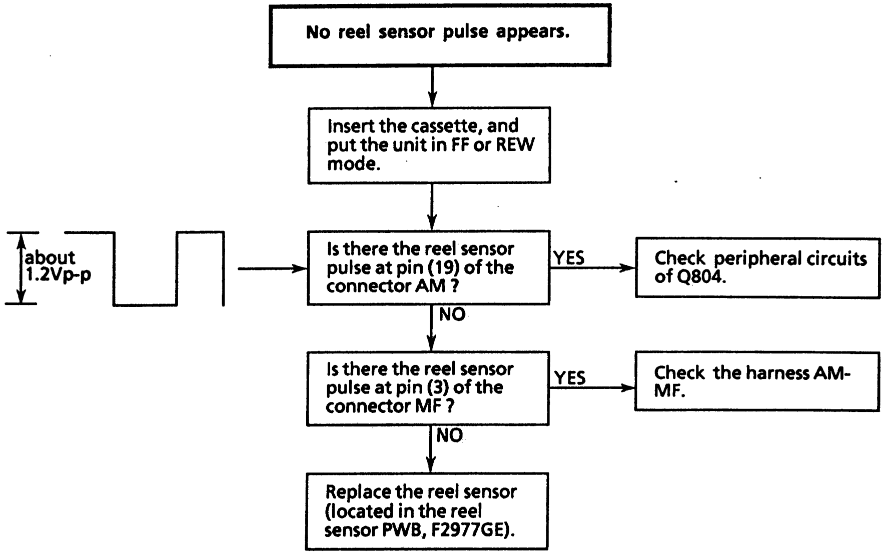
FLOW CHART NO. 11

CAPSTAN SERVO TROUBLESHOOTING

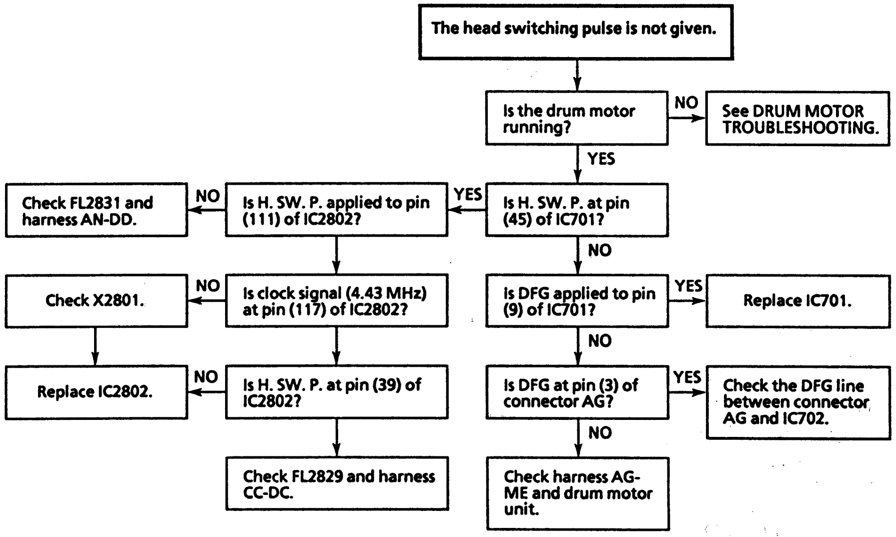

Capstan servo does not function.
Are REC and /or PB mode inoperative ?
Only PB inoperative.
Only REC mode inoperative.
Ⓐ
Ⓑ
YES
Is there the clock input at pin (42) of IC701? (4.43 MHz in PAL / MESECAM / SECAM mode, 3.58 MHz in NTSC mode; level at about 0.3 Vp-p)
NO
Check the main PWB and the line between the main PWB and pin (42) of IC701.
YES
Does there appear the capstan FG signal at pin (37) of IC701 ?
NO
Check the capstan FG signal line between the harness AM-MC and Q709.
YES
Is there capstan AFC signal at pin (22) of IC701 ?
NO
Replace IC701.
YES
Is there the capstan APC signal pin (20) of IC701 ?
NO
Does there appear CTL signal at pin (36) of IC701 ?
YES
NO
Does CTL amplifier circuit of IC701 (pins (32) to (35)) operate normally ?
YES
NO
Replace IC701.
YES
Are pins (21), (25) and (27) of IC701 normal ?
NO
Replace IC701.
YES
Is pin (48) of IC801 normal ?
NO
Replace IC801.
YES
Check "Ⓐ".
Check "Ⓑ".
Replace the capstan motor.
YES
Does there appear the Composite sync at pin (50) at IC701 ?
NO
Check the composite sync. signal line.
YES
Is there CTL signal output at pins (29) and (30) of IC701 ?
YES
NO
Does there appear CTL signal at pin (36) of IC701 ?
YES
NO
Does CTL amplifier circuit of IC701 (pins (32) to (35)) operate normally ?
YES
Check the line between pin (36) of IC701 and pin (35) of IC701.
NO
Do the circuits around pins (32) to (35) of IC701 operate normally ?
NO
Replace defective parts.
YES
Is the harness AH-MH normal ?
NO
Replace the harness AH-MH.
YES
Does the A/C head operate normally ?
NO
Replace the A/C head.
YES
Adjust the height of the A/C head.
YES
Is there capstan APC signal at pin (20) of IC701 ?
YES
Check the capstan motor unit.
NO
Replace IC701.

TAKE-UP REEL PULSE GENERATOR TROUBLESHOOTING

FLOW CHART NO. 12

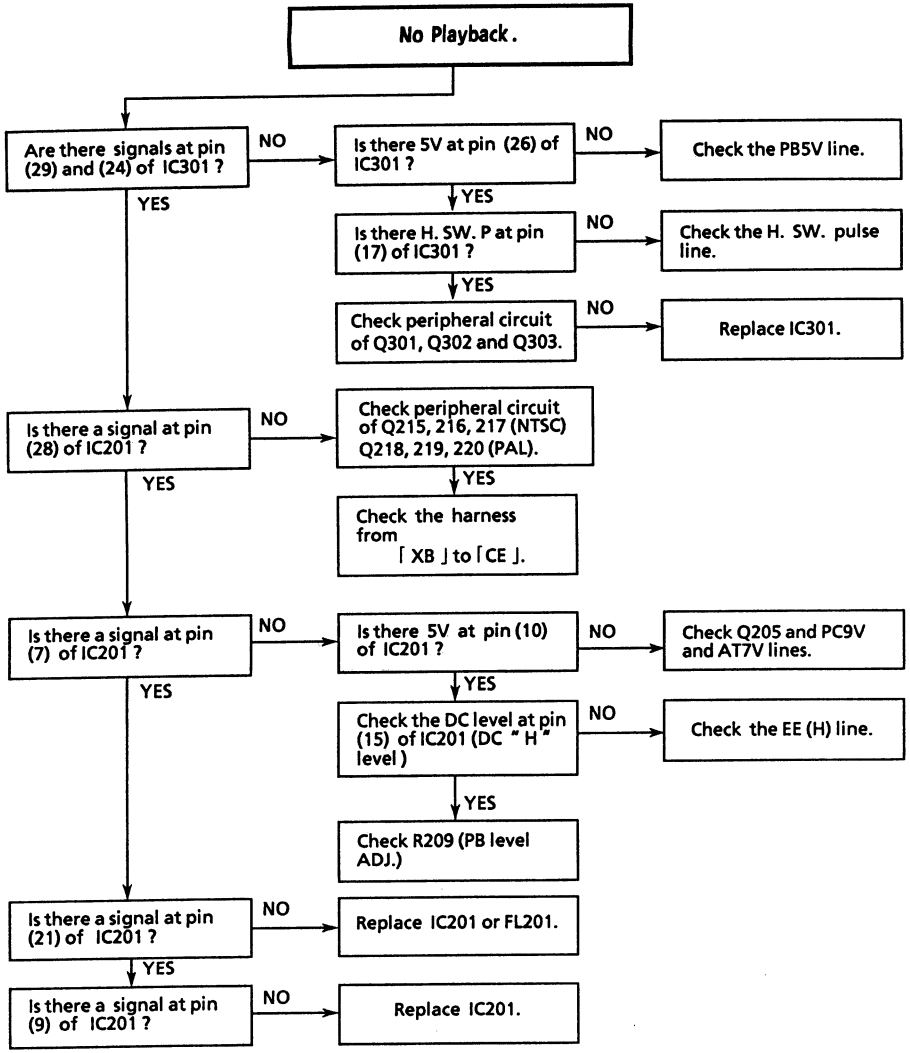

No reel sensor pulse appears.
Insert the cassette, and put the unit in FF or REW mode.
about 1.2Vp-p
Is there the reel sensor pulse at pin (19) of the connector AM ?
YES
Check peripheral circuits of Q804.
NO
Is there the reel sensor pulse at pin (3) of the connector MF ?
YES
Check the harness AM-MF.
NO
Replace the reel sensor (located in the reel sensor PWB, F2977GE).

FLOW CHART NO. 13


The head switching pulse is not given.
Is the drum motor running?
NO
See DRUM MOTOR TROUBLESHOOTING.
YES
Is H. SW. P. at pin (45) of IC701?
YES
Is H. SW. P. applied to pin (111) of IC2802?
NO
Check FL2831 and harness AN-DD.
Is clock signal (4.43 MHz) at pin (117) of IC2802?
NO
Check X2801.
Replace IC2802.
Is H. SW. P. at pin (39) of IC2802?
NO
Check FL2829 and harness CC-DC.
NO
Is DFG applied to pin (9) of IC701?
YES
Replace IC701.
NO
Is DFG at pin (3) of connector AG?
YES
Check the DFG line between connector AG and IC702.
NO
Check harness AG-ME and drum motor unit.

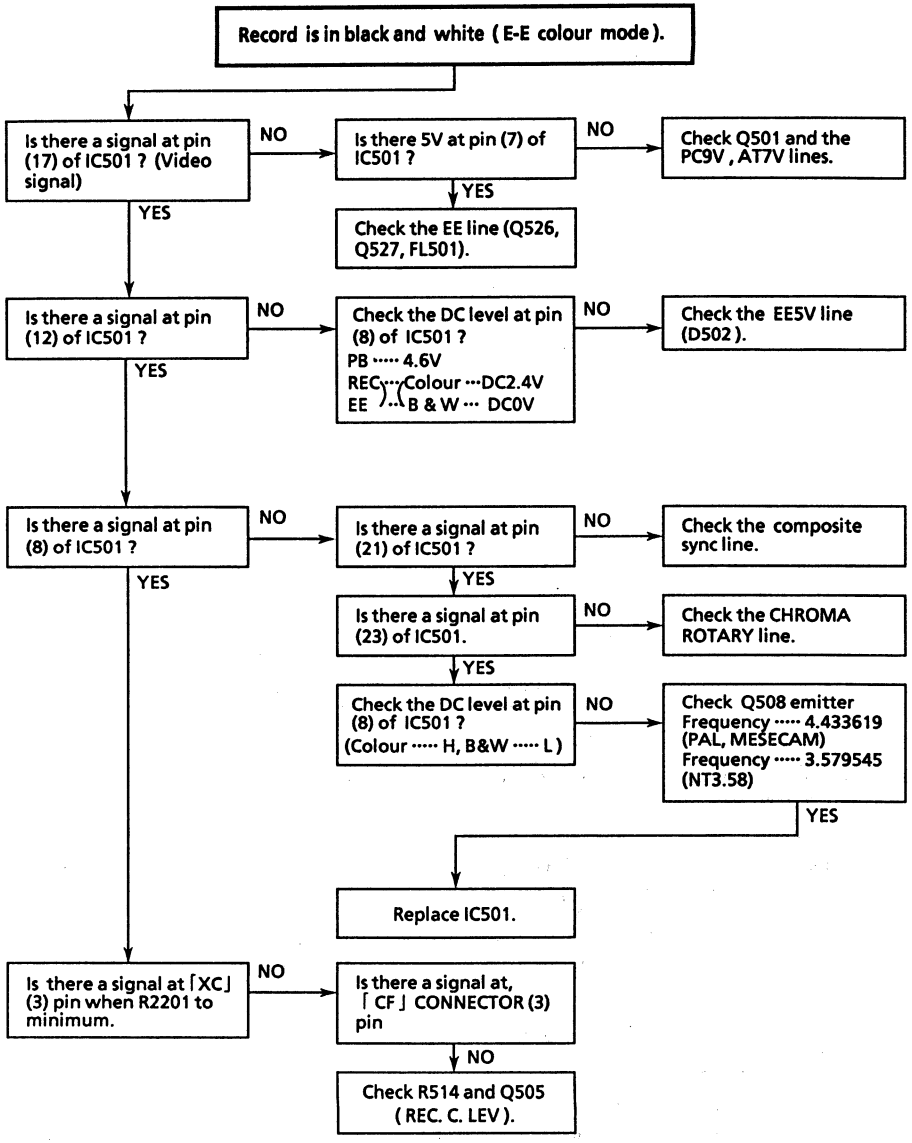
PLAYBACK MODE (LUMINANCE) TROUBLESHOOTING

FLOW CHART NO. 14


No Playback.
Are there signals at pin (29) and (24) of IC301 ?
NO
Is there 5V at pin (26) of IC301 ?
NO
Check the PB5V line.
YES
Is there H. SW. P at pin (17) of IC301 ?
NO
Check the H. SW. pulse line.
YES
Check peripheral circuit of Q301, Q302 and Q303.
NO
Replace IC301.
YES
Is there a signal at pin (28) of IC201 ?
NO
Check peripheral circuit of Q215, 216, 217 (NTSC) Q218, 219, 220 (PAL).
YES
Check the harness from ⌈ XB ⌋ to ⌈ CE ⌋.
YES
Is there a signal at pin (7) of IC201 ?
NO
Is there 5V at pin (10) of IC201 ?
NO
Check Q205 and PC9V and AT7V lines.
YES
Check the DC level at pin (15) of IC201 (DC " H " level)
NO
Check the EE (H) line.
YES
Check R209 (PB level ADJ.)
YES
Is there a signal at pin (21) of IC201 ?
NO
Replace IC201 or FL201.
YES
Is there a signal at pin (9) of IC201 ?
NO
Replace IC201.

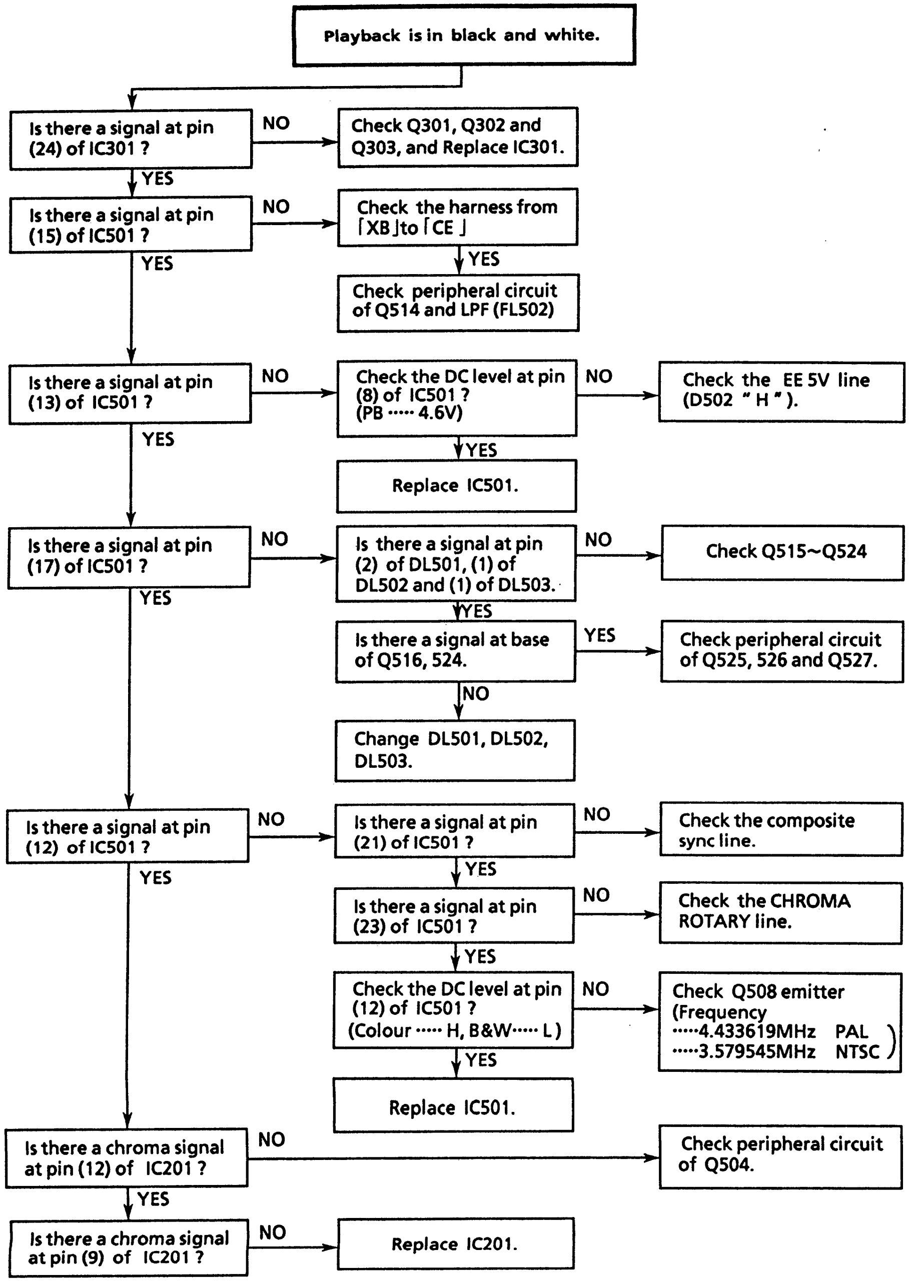
RECORDING MODE PAL. NTSC. MESECAM (CHROMA) TROUBLESHOOTING

FLOW CHART NO. 15


Record is in black and white (E-E colour mode).
Is there a signal at pin (17) of IC501 ? (Video signal)
NO
Is there 5V at pin (7) of IC501 ?
NO
Check Q501 and the PC9V , AT7V lines.
YES
Check the EE line (Q526, Q527, FL501).
YES
Is there a signal at pin (12) of IC501 ?
NO
Check the DC level at pin (8) of IC501 ?
PB ····· 4.6V
REC ··· Colour ··· DC2.4V
EE ··· B & W ··· DC0V
NO
Check the EE5V line (D502).
YES
Is there a signal at pin (8) of IC501 ?
NO
Is there a signal at pin (21) of IC501 ?
NO
Check the composite sync line.
YES
Is there a signal at pin (23) of IC501.
NO
Check the CHROMA ROTARY line.
YES
Check the DC level at pin (8) of IC501 ? (Colour ····· H, B&W ····· L)
NO
Check Q508 emitter Frequency ····· 4.433619 (PAL, MESECAM) Frequency ····· 3.579545 (NT3.58)
YES
Replace IC501.
YES
Is there a signal at ⌈ XC ⌋ (3) pin when R2201 to minimum.
NO
Is there a signal at, ⌈ CF ⌋ CONNECTOR (3) pin
NO
Check R514 and Q505 (REC. C. LEV).

PLAYBACK MODE PAL. NTSC. MESECAM (CHROMA) TROUBLESHOOTING

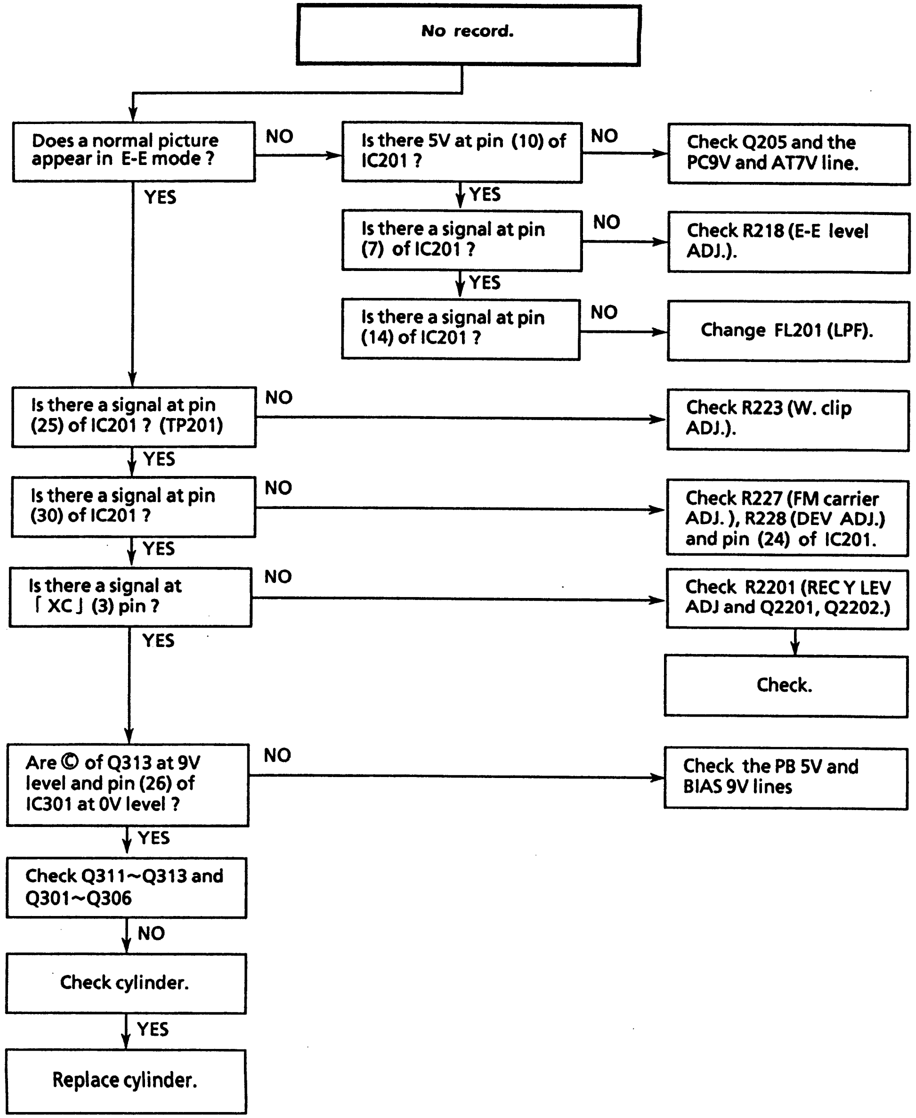
FLOW CHART NO. 16



Playback is in black and white.
Is there a signal at pin (24) of IC301 ?
NO
Check Q301, Q302 and Q303, and Replace IC301.
YES
Is there a signal at pin (15) of IC501 ?
NO
Check the harness from 「XB」to「CE」
YES
Check peripheral circuit of Q514 and LPF (FL502)
YES
Is there a signal at pin (13) of IC501 ?
NO
Check the DC level at pin (8) of IC501 ? (PB ····· 4.6V)
NO
Check the EE 5V line (D502 "H").
YES
Replace IC501.
YES
Is there a signal at pin (17) of IC501 ?
NO
Is there a signal at pin (2) of DL501, (1) of DL502 and (1) of DL503.
NO
Check Q515~Q524
YES
Is there a signal at base of Q516, 524.
YES
Check peripheral circuit of Q525, 526 and Q527.
NO
Change DL501, DL502, DL503.
YES
Is there a signal at pin (12) of IC501 ?
NO
Is there a signal at pin (21) of IC501 ?
NO
Check the composite sync line.
YES
Is there a signal at pin (23) of IC501 ?
NO
Check the CHROMA ROTARY line.
YES
Check the DC level at pin (12) of IC501 ? (Colour ····· H, B&W····· L)
NO
Check Q508 emitter (Frequency ·····4.433619MHz PAL ·····3.579545MHz NTSC)
YES
Replace IC501.
YES
Is there a chroma signal at pin (12) of IC201 ?
NO
Check peripheral circuit of Q504.
YES
Is there a chroma signal at pin (9) of IC201 ?
NO
Replace IC201.

RECORDING MODE (LUMINANCE) TROUBLESHOOTING

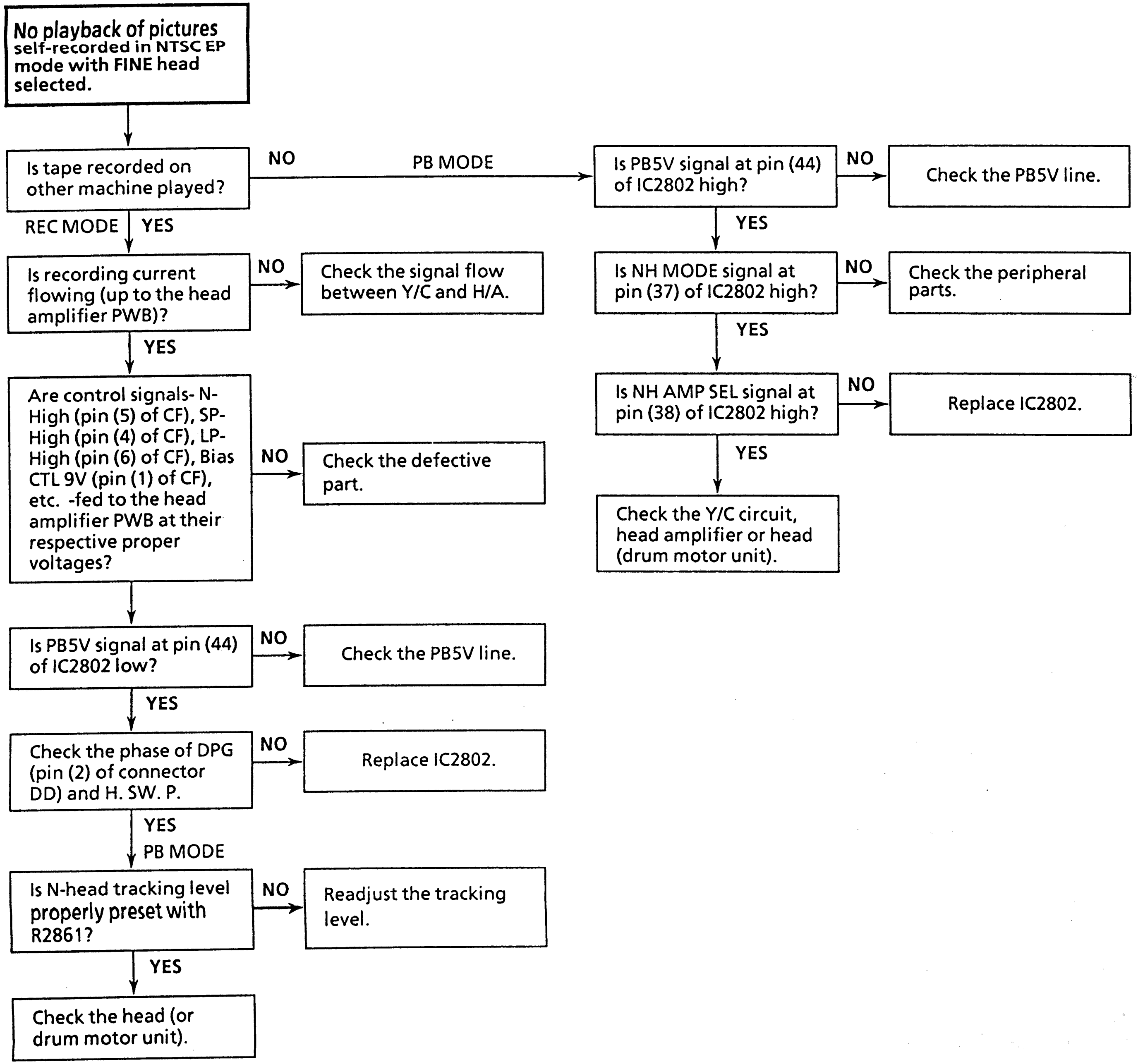
FLOW CHART NO. 17



No record.
Does a normal picture appear in E-E mode ?
NO
Is there 5V at pin (10) of IC201 ?
NO
Check Q205 and the PC9V and AT7V line.
YES
Is there a signal at pin (7) of IC201 ?
NO
Check R218 (E-E level ADJ.).
YES
Is there a signal at pin (14) of IC201 ?
NO
Change FL201 (LPF).
YES
Is there a signal at pin (25) of IC201 ? (TP201)
NO
Check R223 (W. clip ADJ.).
YES
Is there a signal at pin (30) of IC201 ?
NO
Check R227 (FM carrier ADJ.), R228 (DEV ADJ.) and pin (24) of IC201.
YES
Is there a signal at 「XC」(3) pin ?
NO
Check R2201 (REC Y LEV ADJ and Q2201, Q2202.)
Check.
YES
Are © of Q313 at 9V level and pin (26) of IC301 at 0V level ?
NO
Check the PB 5V and BIAS 9V lines
YES
Check Q311~Q313 and Q301~Q306
NO
Check cylinder.
YES
Replace cylinder.

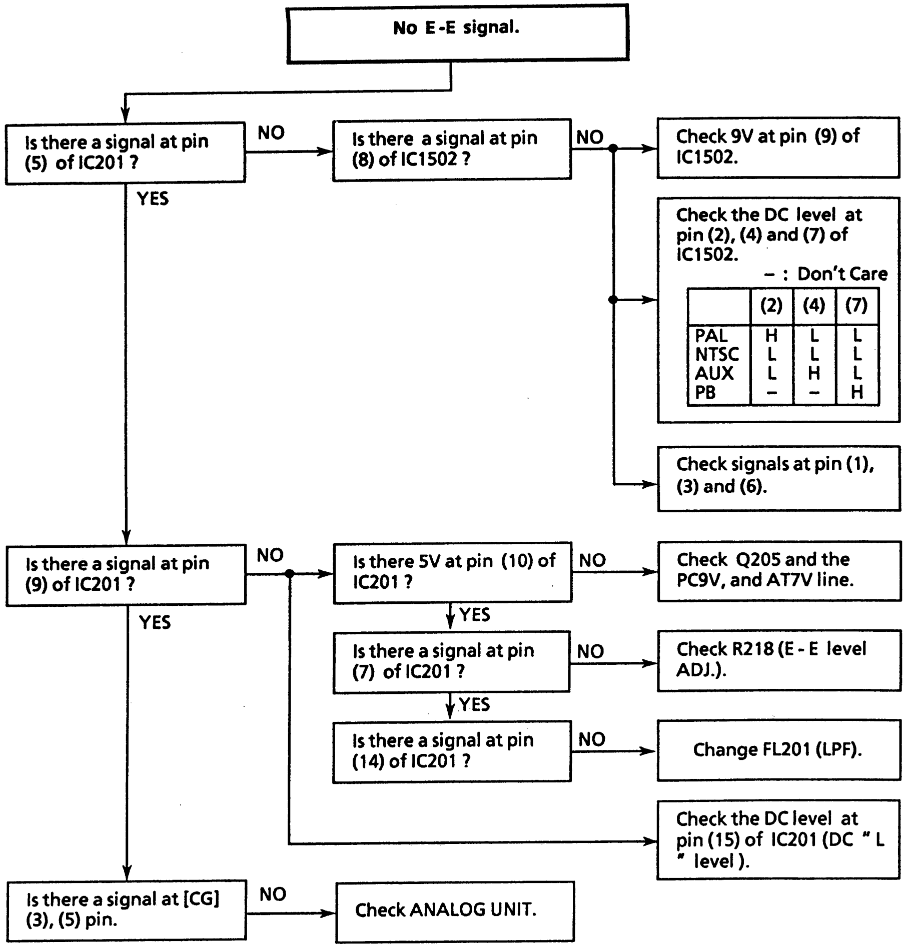
N-HEAD TROUBLESHOOTING

FLOW CHART NO. 18


No playback of pictures self-recorded in NTSC EP mode with FINE head selected.
Is tape recorded on other machine played?
NO
PB MODE
REC MODE
YES
Is recording current flowing (up to the head amplifier PWB)?
NO
Check the signal flow between Y/C and H/A.
YES
Are control signals- N-High (pin (5) of CF), SP-High (pin (4) of CF), LP-High (pin (6) of CF), Bias CTL 9V (pin (1) of CF), etc. -fed to the head amplifier PWB at their respective proper voltages?
NO
Check the defective part.
Is PB5V signal at pin (44) of IC2802 low?
NO
Check the PB5V line.
YES
Check the phase of DPG (pin (2) of connector DD) and H. SW. P.
NO
Replace IC2802.
YES
PB MODE
Is N-head tracking level properly preset with R2861?
NO
Readjust the tracking level.
YES
Check the head (or drum motor unit).
Is PB5V signal at pin (44) of IC2802 high?
NO
Check the PB5V line.
YES
Is NH MODE signal at pin (37) of IC2802 high?
NO
Check the peripheral parts.
YES
Is NH AMP SEL signal at pin (38) of IC2802 high?
NO
Replace IC2802.
YES
Check the Y/C circuit, head amplifier or head (drum motor unit).

E-E MODE TROUBLESHOOTING

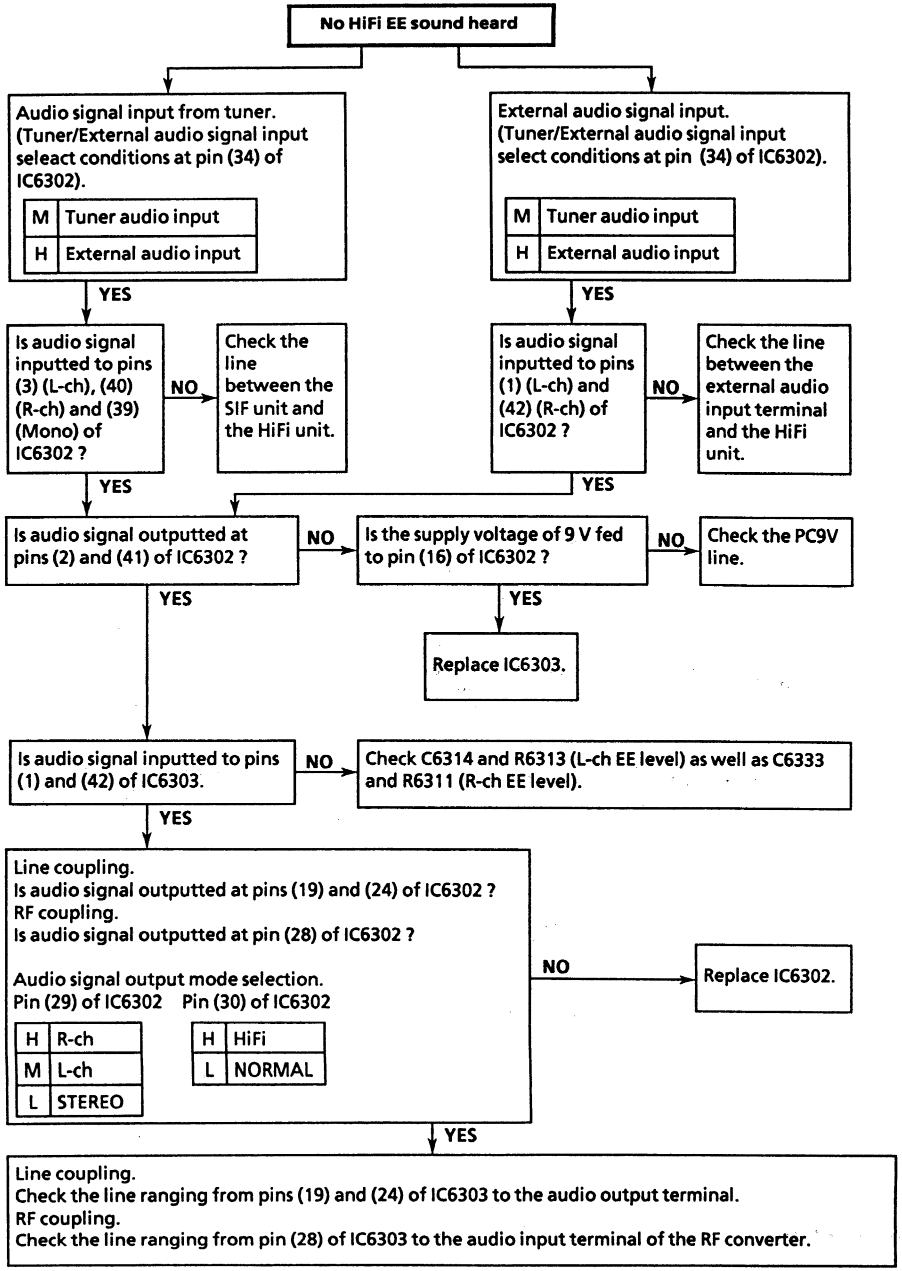
FLOW CHART NO. 19


No E-E signal.
Is there a signal at pin (5) of IC201 ?
NO
Is there a signal at pin (8) of IC1502 ?
NO
Check 9V at pin (9) of IC1502.
Check the DC level at pin (2), (4) and (7) of IC1502.
– : Don't Care
Check signals at pin (1), (3) and (6).
YES
Is there a signal at pin (9) of IC201 ?
NO
Is there 5V at pin (10) of IC201 ?
NO
Check Q205 and the PC9V, and AT7V line.
YES
Is there a signal at pin (7) of IC201 ?
NO
Check R218 (E-E level ADJ.).
YES
Is there a signal at pin (14) of IC201 ?
NO
Change FL201 (LPF).
Check the DC level at pin (15) of IC201 (DC " L " level).
YES
Is there a signal at [CG] (3), (5) pin.
NO
Check ANALOG UNIT.

	(2)	(4)	(7)
PAL	H	L	L
NTSC	L	L	L
AUX	L	H	L
PB	–	–	H

HiFi TROUBLESHOOTING (1)

FLOW CHART NO. 20


No HiFi EE sound heard
Audio signal input from tuner. (Tuner/External audio signal input seleact conditions at pin (34) of IC6302).
External audio signal input. (Tuner/External audio signal input select conditions at pin (34) of IC6302).
YES
Is audio signal inputted to pins (3) (L-ch), (40) (R-ch) and (39) (Mono) of IC6302 ?
NO
Check the line between the SIF unit and the HiFi unit.
YES
Is audio signal inputted to pins (1) (L-ch) and (42) (R-ch) of IC6302 ?
NO
Check the line between the external audio input terminal and the HiFi unit.
YES
YES
Is audio signal outputted at pins (2) and (41) of IC6302 ?
NO
Is the supply voltage of 9 V fed to pin (16) of IC6302 ?
NO
Check the PC9V line.
YES
Replace IC6303.
YES
Is audio signal inputted to pins (1) and (42) of IC6303.
NO
Check C6314 and R6313 (L-ch EE level) as well as C6333 and R6311 (R-ch EE level).
YES
Line coupling.
Is audio signal outputted at pins (19) and (24) of IC6302 ?
RF coupling.
Is audio signal outputted at pin (28) of IC6302 ?
Audio signal output mode selection.
Pin (29) of IC6302
Pin (30) of IC6302
NO
Replace IC6302.
YES
Line coupling.
Check the line ranging from pins (19) and (24) of IC6303 to the audio output terminal.
RF coupling.
Check the line ranging from pin (28) of IC6303 to the audio input terminal of the RF converter.

M	Tuner audio input
H	External audio input

M	Tuner audio input
H	External audio input

Pin (29) of IC6302

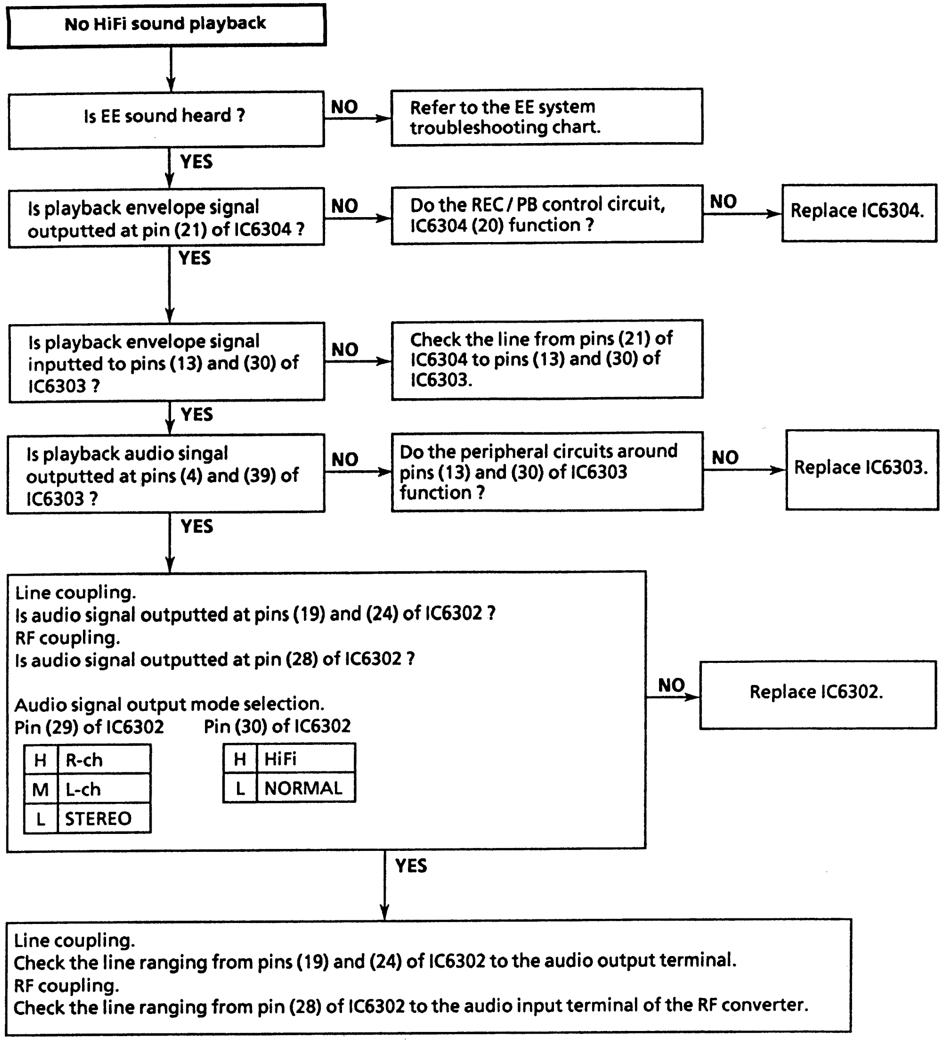
H	R-ch
M	L-ch
L	STEREO

Pin (30) of IC6302

H	HiFi
L	NORMAL

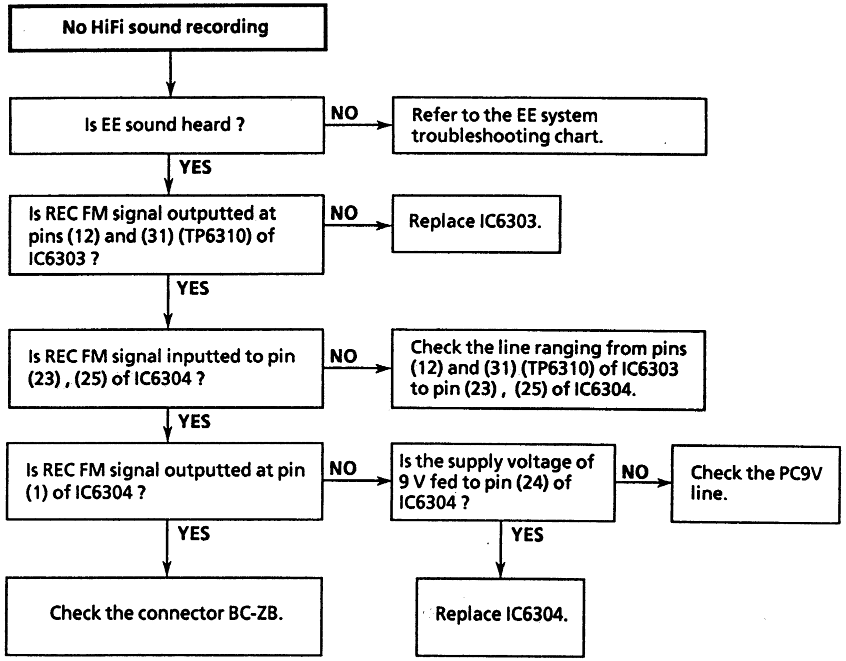
HiFi TROUBLESHOOTING (2)

FLOW CHART NO. 21

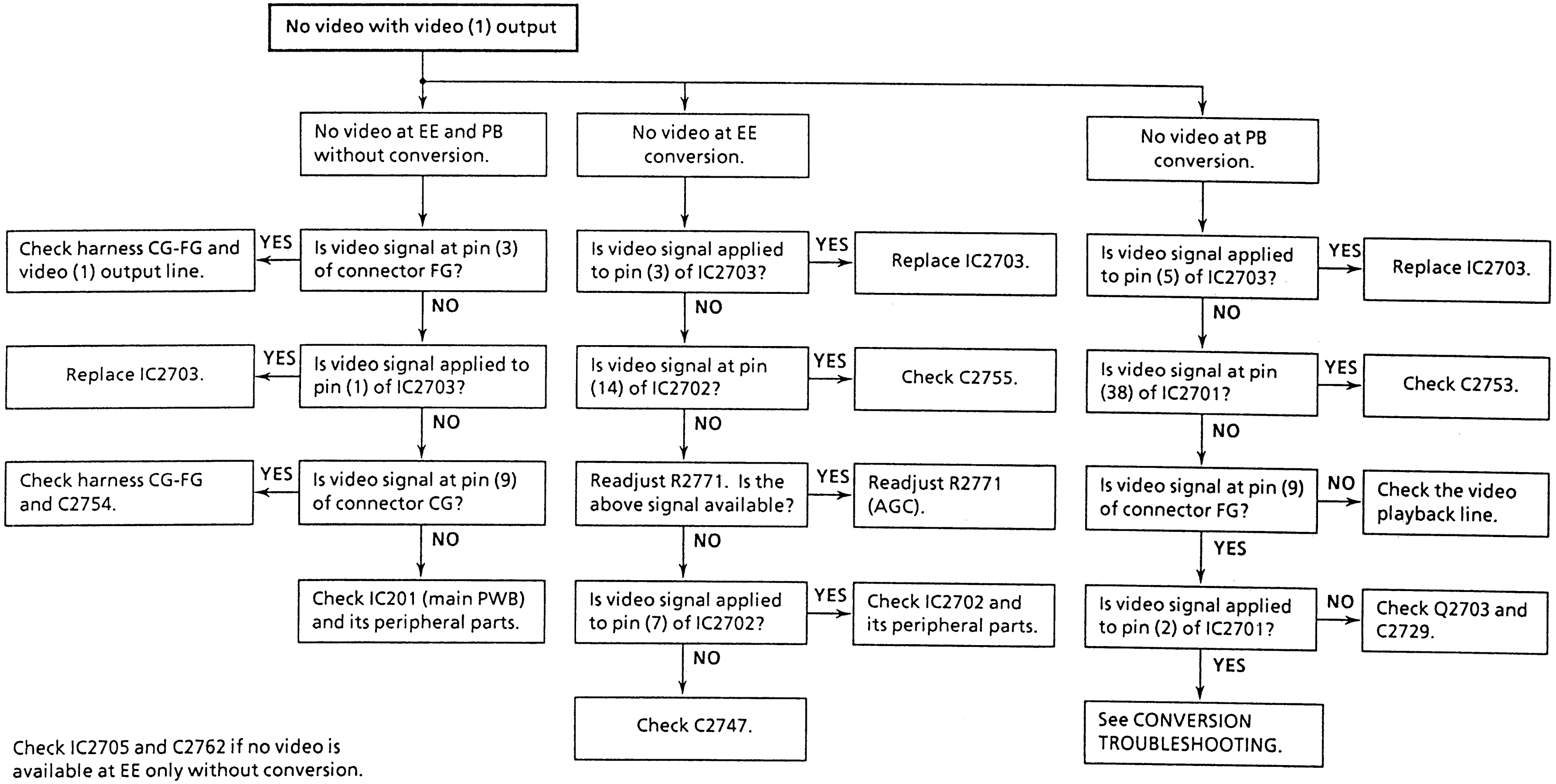

No HiFi sound playback
Is EE sound heard ?
NO
Refer to the EE system troubleshooting chart.
YES
Is playback envelope signal outputted at pin (21) of IC6304 ?
NO
Do the REC / PB control circuit, IC6304 (20) function ?
NO
Replace IC6304.
YES
Is playback envelope signal inputted to pins (13) and (30) of IC6303 ?
NO
Check the line from pins (21) of IC6304 to pins (13) and (30) of IC6303.
YES
Is playback audio singal outputted at pins (4) and (39) of IC6303 ?
NO
Do the peripheral circuits around pins (13) and (30) of IC6303 function ?
NO
Replace IC6303.
YES
Line coupling.
Is audio signal outputted at pins (19) and (24) of IC6302 ?
RF coupling.
Is audio signal outputted at pin (28) of IC6302 ?
Audio signal output mode selection.
Pin (29) of IC6302
H R-ch
M L-ch
L STEREO
Pin (30) of IC6302
H HiFi
L NORMAL
NO
Replace IC6302.
YES
Line coupling.
Check the line ranging from pins (19) and (24) of IC6302 to the audio output terminal.
RF coupling.
Check the line ranging from pin (28) of IC6302 to the audio input terminal of the RF converter.

HiFi TROUBLESHOOTING (3)

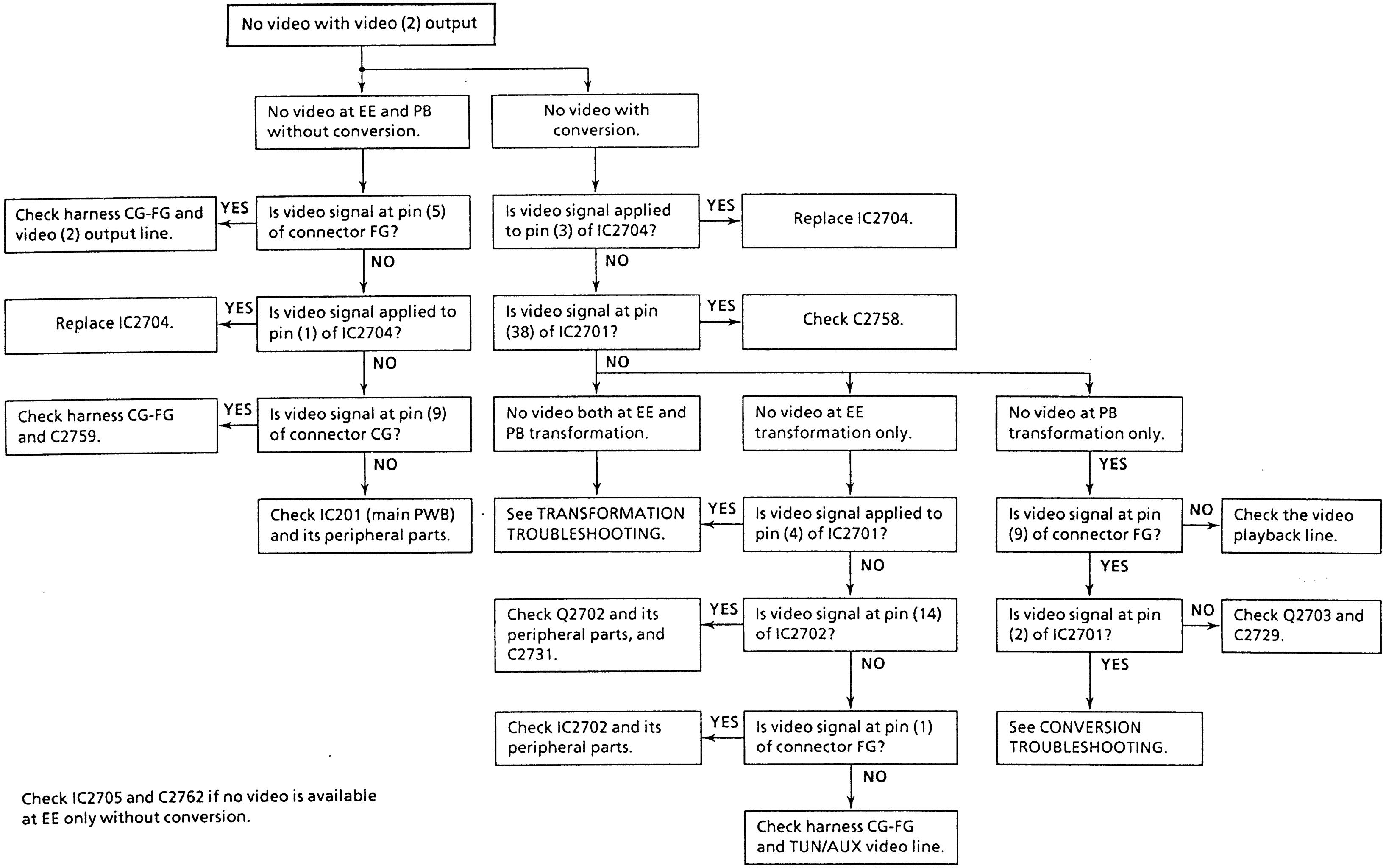
FLOW CHART NO. 22


No HiFi sound recording
Is EE sound heard ?
NO
Refer to the EE system troubleshooting chart.
YES
Is REC FM signal outputted at pins (12) and (31) (TP6310) of IC6303 ?
NO
Replace IC6303.
YES
Is REC FM signal inputted to pin (23), (25) of IC6304 ?
NO
Check the line ranging from pins (12) and (31) (TP6310) of IC6303 to pin (23), (25) of IC6304.
YES
Is REC FM signal outputted at pin (1) of IC6304 ?
NO
Is the supply voltage of 9 V fed to pin (24) of IC6304 ?
NO
Check the PC9V line.
YES
Replace IC6304.
YES
Check the connector BC-ZB.

FLOW CHART NO. 23


No video with video (1) output
No video at EE and PB without conversion.
No video at EE conversion.
No video at PB conversion.
Check harness CG-FG and video (1) output line.
YES
Is video signal at pin (3) of connector FG?
NO
Replace IC2703.
YES
Is video signal applied to pin (1) of IC2703?
NO
Check harness CG-FG and C2754.
YES
Is video signal at pin (9) of connector CG?
NO
Check IC201 (main PWB) and its peripheral parts.
Is video signal applied to pin (3) of IC2703?
YES
Replace IC2703.
NO
Is video signal at pin (14) of IC2702?
YES
Check C2755.
NO
Readjust R2771. Is the above signal available?
YES
Readjust R2771 (AGC).
NO
Is video signal applied to pin (7) of IC2702?
YES
Check IC2702 and its peripheral parts.
NO
Check C2747.
Is video signal applied to pin (5) of IC2703?
YES
Replace IC2703.
NO
Is video signal at pin (38) of IC2701?
YES
Check C2753.
NO
Is video signal at pin (9) of connector FG?
NO
Check the video playback line.
YES
Is video signal applied to pin (2) of IC2701?
NO
Check Q2703 and C2729.
YES
See CONVERSION TROUBLESHOOTING.

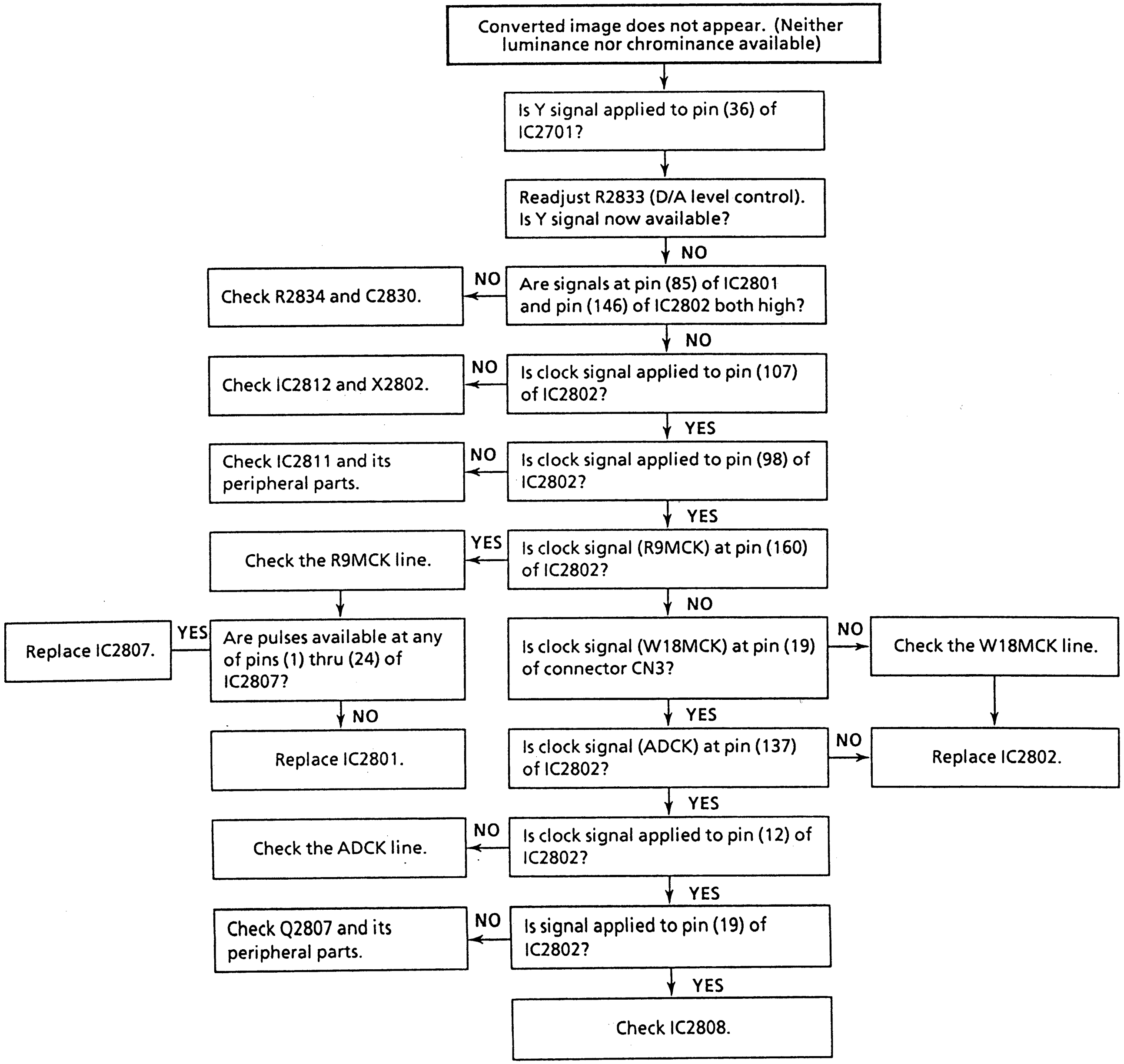
Check IC2705 and C2762 if no video is available at EE only without conversion.


No video with video (2) output
No video at EE and PB without conversion.
No video with conversion.
Is video signal at pin (5) of connector FG?
YES
Check harness CG-FG and video (2) output line.
NO
Is video signal applied to pin (1) of IC2704?
YES
Replace IC2704.
NO
Is video signal at pin (9) of connector CG?
YES
Check harness CG-FG and C2759.
NO
Check IC201 (main PWB) and its peripheral parts.
Is video signal applied to pin (3) of IC2704?
YES
Replace IC2704.
NO
Is video signal at pin (38) of IC2701?
YES
Check C2758.
NO
No video both at EE and PB transformation.
See TRANSFORMATION TROUBLESHOOTING.
No video at EE transformation only.
Is video signal applied to pin (4) of IC2701?
YES
NO
Is video signal at pin (14) of IC2702?
YES
Check Q2702 and its peripheral parts, and C2731.
NO
Is video signal at pin (1) of connector FG?
YES
Check IC2702 and its peripheral parts.
NO
Check harness CG-FG and TUN/AUX video line.
No video at PB transformation only.
YES
Is video signal at pin (9) of connector FG?
NO
Check the video playback line.
YES
Is video signal at pin (2) of IC2701?
NO
Check Q2703 and C2729.
YES
See CONVERSION TROUBLESHOOTING.

Check IC2705 and C2762 if no video is available at EE only without conversion.

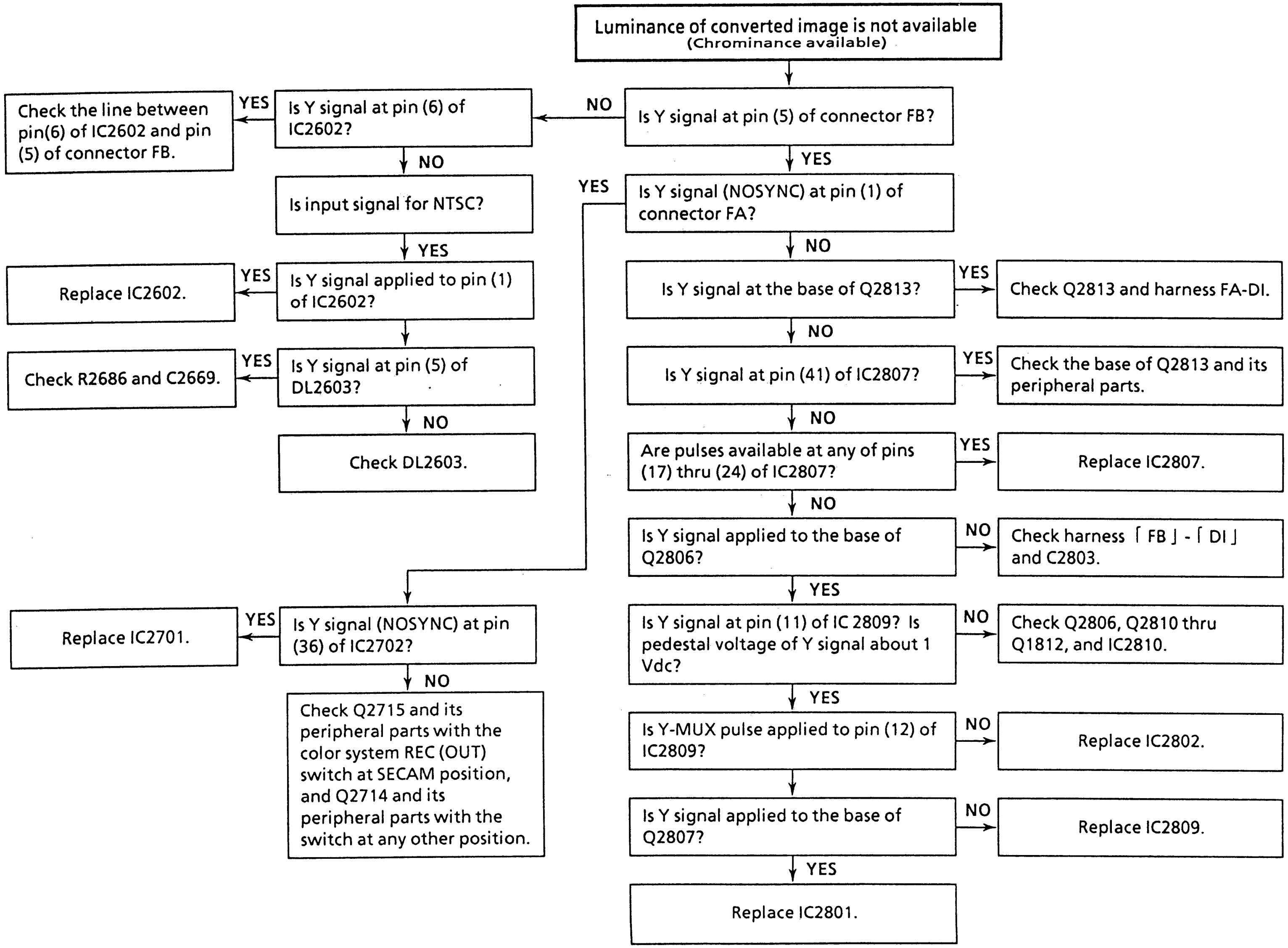
CONVERSION TROUBLESHOOTING

FLOW CHART NO. 25

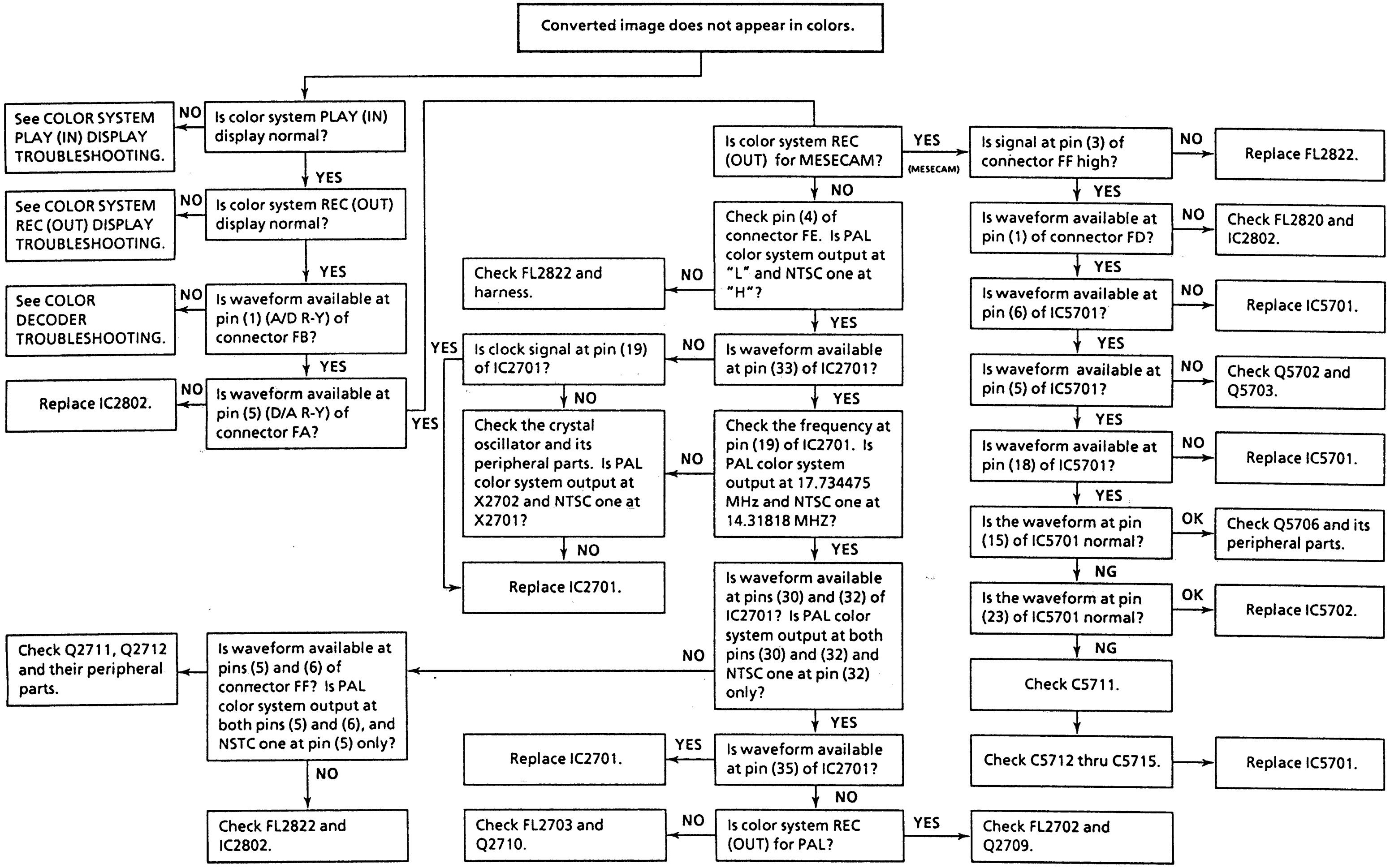

Converted image does not appear. (Neither luminance nor chrominance available)
Is Y signal applied to pin (36) of IC2701?
Readjust R2833 (D/A level control). Is Y signal now available?
NO
Are signals at pin (85) of IC2801 and pin (146) of IC2802 both high?
NO
Check R2834 and C2830.
NO
Is clock signal applied to pin (107) of IC2802?
NO
Check IC2812 and X2802.
YES
Is clock signal applied to pin (98) of IC2802?
NO
Check IC2811 and its peripheral parts.
YES
Is clock signal (R9MCK) at pin (160) of IC2802?
YES
Check the R9MCK line.
Are pulses available at any of pins (1) thru (24) of IC2807?
YES
Replace IC2807.
NO
Replace IC2801.
NO
Is clock signal (W18MCK) at pin (19) of connector CN3?
NO
Check the W18MCK line.
YES
Is clock signal (ADCK) at pin (137) of IC2802?
NO
Replace IC2802.
YES
Is clock signal applied to pin (12) of IC2802?
NO
Check the ADCK line.
YES
Is signal applied to pin (19) of IC2802?
NO
Check Q2807 and its peripheral parts.
YES
Check IC2808.

CONVERSION TROUBLESHOOTING

FLOW CHART NO. 26

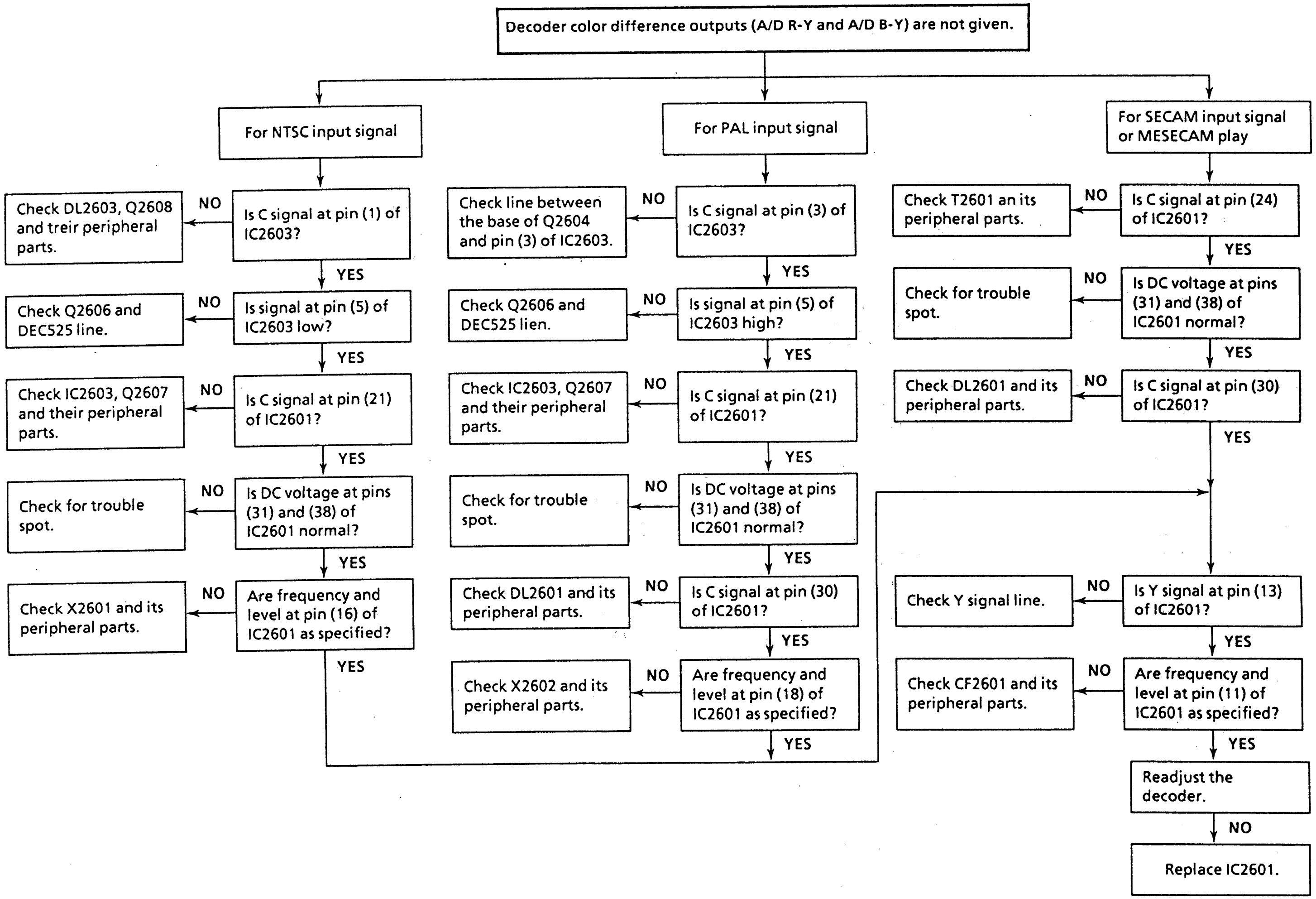

Luminance of converted image is not available
(Chrominance available)
Is Y signal at pin (5) of connector FB?
NO
Is Y signal at pin (6) of IC2602?
YES
Check the line between pin(6) of IC2602 and pin (5) of connector FB.
NO
Is input signal for NTSC?
YES
Is Y signal applied to pin (1) of IC2602?
YES
Replace IC2602.
Is Y signal at pin (5) of DL2603?
YES
Check R2686 and C2669.
NO
Check DL2603.
YES
Is Y signal (NOSYNC) at pin (1) of connector FA?
YES
Is Y signal (NOSYNC) at pin (36) of IC2702?
YES
Replace IC2701.
NO
Check Q2715 and its peripheral parts with the color system REC (OUT) switch at SECAM position, and Q2714 and its peripheral parts with the switch at any other position.
NO
Is Y signal at the base of Q2813?
YES
Check Q2813 and harness FA-DI.
NO
Is Y signal at pin (41) of IC2807?
YES
Check the base of Q2813 and its peripheral parts.
NO
Are pulses available at any of pins (17) thru (24) of IC2807?
YES
Replace IC2807.
NO
Is Y signal applied to the base of Q2806?
NO
Check harness 「FB」-「DI」 and C2803.
YES
Is Y signal at pin (11) of IC 2809? Is pedestal voltage of Y signal about 1 Vdc?
NO
Check Q2806, Q2810 thru Q1812, and IC2810.
YES
Is Y-MUX pulse applied to pin (12) of IC2809?
NO
Replace IC2802.
Is Y signal applied to the base of Q2807?
NO
Replace IC2809.
YES
Replace IC2801.

FLOW CHART NO. 27


Converted image does not appear in colors.
Is color system PLAY (IN) display normal?
NO
See COLOR SYSTEM PLAY (IN) DISPLAY TROUBLESHOOTING.
YES
Is color system REC (OUT) display normal?
NO
See COLOR SYSTEM REC (OUT) DISPLAY TROUBLESHOOTING.
YES
Is waveform available at pin (1) (A/D R-Y) of connector FB?
NO
See COLOR DECODER TROUBLESHOOTING.
YES
Is waveform available at pin (5) (D/A R-Y) of connector FA?
NO
Replace IC2802.
YES
Is color system REC (OUT) for MESECAM?
YES (MESECAM)
Is signal at pin (3) of connector FF high?
NO
Replace FL2822.
YES
Is waveform available at pin (1) of connector FD?
NO
Check FL2820 and IC2802.
YES
Is waveform available at pin (6) of IC5701?
NO
Replace IC5701.
YES
Is waveform available at pin (5) of IC5701?
NO
Check Q5702 and Q5703.
YES
Is waveform available at pin (18) of IC5701?
NO
Replace IC5701.
YES
Is the waveform at pin (15) of IC5701 normal?
OK
Check Q5706 and its peripheral parts.
NG
Is the waveform at pin (23) of IC5701 normal?
OK
Replace IC5702.
NG
Check C5711.
Check C5712 thru C5715.
Replace IC5701.
NO
Check pin (4) of connector FE. Is PAL color system output at "L" and NTSC one at "H"?
NO
Check FL2822 and harness.
YES
Is waveform available at pin (33) of IC2701?
NO
Is clock signal at pin (19) of IC2701?
YES
NO
Check the crystal oscillator and its peripheral parts. Is PAL color system output at X2702 and NTSC one at X2701?
NO
Replace IC2701.
YES
Check the frequency at pin (19) of IC2701. Is PAL color system output at 17.734475 MHz and NTSC one at 14.31818 MHZ?
NO
YES
Is waveform available at pins (30) and (32) of IC2701? Is PAL color system output at both pins (30) and (32) and NTSC one at pin (32) only?
NO
Is waveform available at pins (5) and (6) of connector FF? Is PAL color system output at both pins (5) and (6), and NSTC one at pin (5) only?
Check Q2711, Q2712 and their peripheral parts.
NO
Check FL2822 and IC2802.
YES
Is waveform available at pin (35) of IC2701?
YES
Replace IC2701.
NO
Is color system REC (OUT) for PAL?
NO
Check FL2703 and Q2710.
YES
Check FL2702 and Q2709.

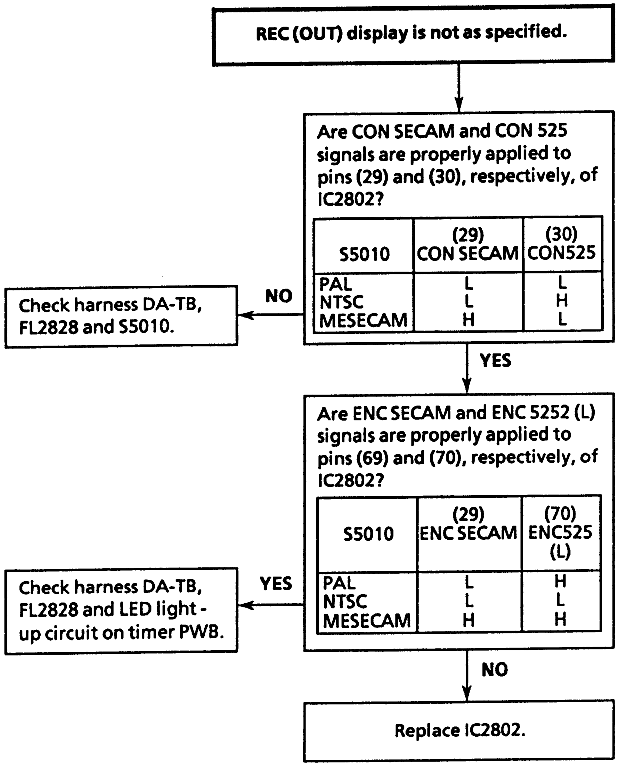
COLOR DECODER TROUBLESHOOTING

FLOW CHART NO. 28


Decoder color difference outputs (A/D R-Y and A/D B-Y) are not given.
For NTSC input signal
Is C signal at pin (1) of IC2603?
NO
Check DL2603, Q2608 and treir peripheral parts.
YES
Is signal at pin (5) of IC2603 low?
NO
Check Q2606 and DEC525 line.
YES
Is C signal at pin (21) of IC2601?
NO
Check IC2603, Q2607 and their peripheral parts.
YES
Is DC voltage at pins (31) and (38) of IC2601 normal?
NO
Check for trouble spot.
YES
Are frequency and level at pin (16) of IC2601 as specified?
NO
Check X2601 and its peripheral parts.
YES
For PAL input signal
Is C signal at pin (3) of IC2603?
NO
Check line between the base of Q2604 and pin (3) of IC2603.
YES
Is signal at pin (5) of IC2603 high?
NO
Check Q2606 and DEC525 lien.
YES
Is C signal at pin (21) of IC2601?
NO
Check IC2603, Q2607 and their peripheral parts.
YES
Is DC voltage at pins (31) and (38) of IC2601 normal?
NO
Check for trouble spot.
YES
Is C signal at pin (30) of IC2601?
NO
Check DL2601 and its peripheral parts.
YES
Are frequency and level at pin (18) of IC2601 as specified?
NO
Check X2602 and its peripheral parts.
YES
For SECAM input signal or MESECAM play
Is C signal at pin (24) of IC2601?
NO
Check T2601 an its peripheral parts.
YES
Is DC voltage at pins (31) and (38) of IC2601 normal?
NO
Check for trouble spot.
YES
Is C signal at pin (30) of IC2601?
NO
Check DL2601 and its peripheral parts.
YES
Is Y signal at pin (13) of IC2601?
NO
Check Y signal line.
YES
Are frequency and level at pin (11) of IC2601 as specified?
NO
Check CF2601 and its peripheral parts.
YES
Readjust the decoder.
NO
Replace IC2601.

SYSTEM DISPLAY TROUBLESHOOTING

FLOW CHART NO. 29


REC (OUT) display is not as specified.
Are CON SECAM and CON 525 signals are properly applied to pins (29) and (30), respectively, of IC2802?
NO
Check harness DA-TB, FL2828 and S5010.
YES
Are ENC SECAM and ENC 5252 (L) signals are properly applied to pins (69) and (70), respectively, of IC2802?
YES
Check harness DA-TB, FL2828 and LED light-up circuit on timer PWB.
NO
Replace IC2802.

S5010	(29) CON SECAM	(30) CON525
PAL	L	L
NTSC	L	H
MESECAM	H	L

S5010	(29) ENC SECAM	(70) ENC525 (L)
PAL	L	H
NTSC	L	L
MESECAM	H	H

SYSTEM DISPLAY TROUBLESHOOTING

FLOW CHART NO. 30

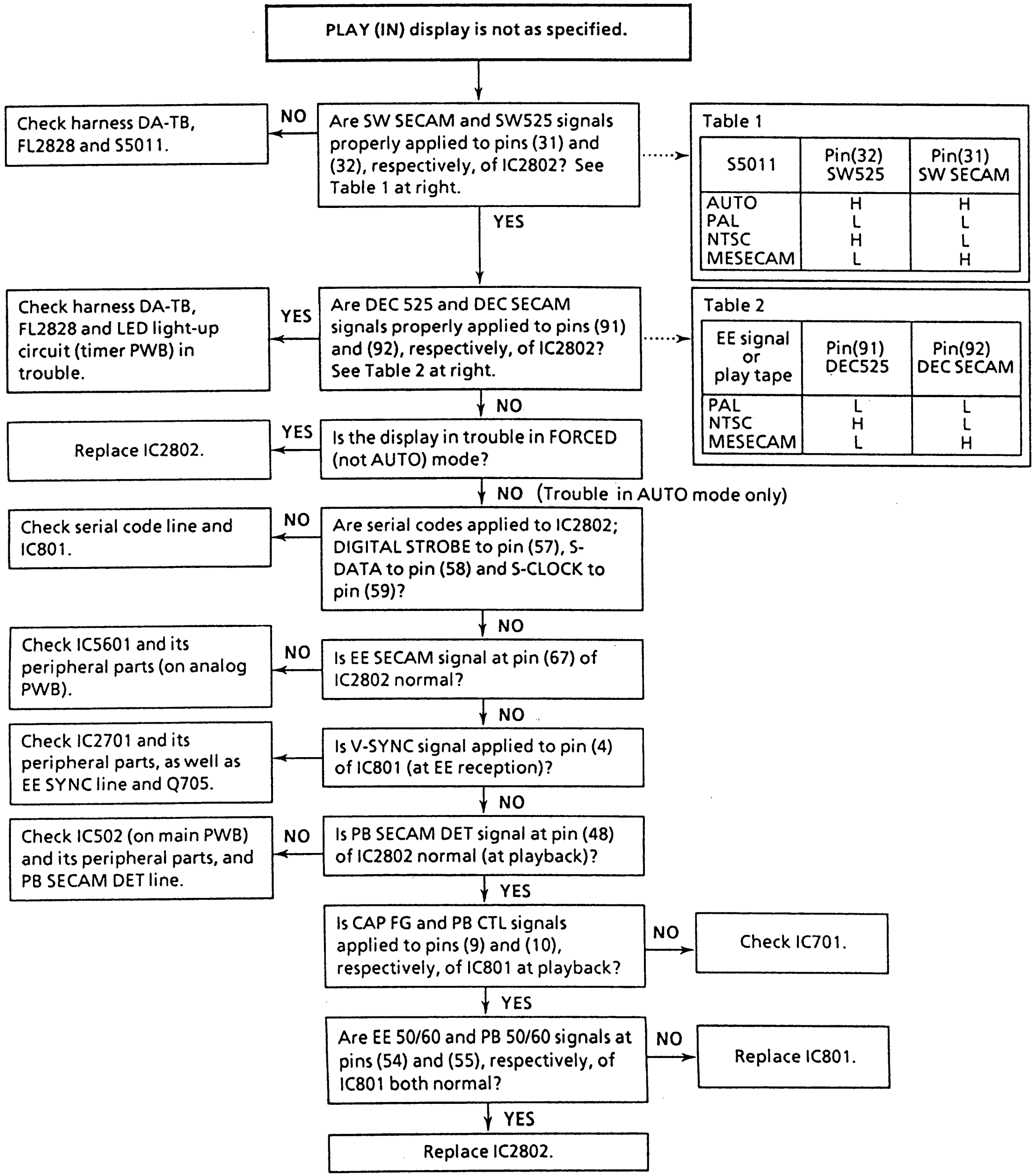

PLAY (IN) display is not as specified.
Are SW SECAM and SW525 signals properly applied to pins (31) and (32), respectively, of IC2802? See Table 1 at right.
NO
Check harness DA-TB, FL2828 and S5011.
YES
Are DEC 525 and DEC SECAM signals properly applied to pins (91) and (92), respectively, of IC2802? See Table 2 at right.
YES
Check harness DA-TB, FL2828 and LED light-up circuit (timer PWB) in trouble.
NO
Is the display in trouble in FORCED (not AUTO) mode?
YES
Replace IC2802.
NO (Trouble in AUTO mode only)
Are serial codes applied to IC2802; DIGITAL STROBE to pin (57), S-DATA to pin (58) and S-CLOCK to pin (59)?
NO
Check serial code line and IC801.
NO
Is EE SECAM signal at pin (67) of IC2802 normal?
NO
Check IC5601 and its peripheral parts (on analog PWB).
NO
Is V-SYNC signal applied to pin (4) of IC801 (at EE reception)?
Check IC2701 and its peripheral parts, as well as EE SYNC line and Q705.
NO
Is PB SECAM DET signal at pin (48) of IC2802 normal (at playback)?
NO
Check IC502 (on main PWB) and its peripheral parts, and PB SECAM DET line.
YES
Is CAP FG and PB CTL signals applied to pins (9) and (10), respectively, of IC801 at playback?
NO
Check IC701.
YES
Are EE 50/60 and PB 50/60 signals at pins (54) and (55), respectively, of IC801 both normal?
NO
Replace IC801.
YES
Replace IC2802.

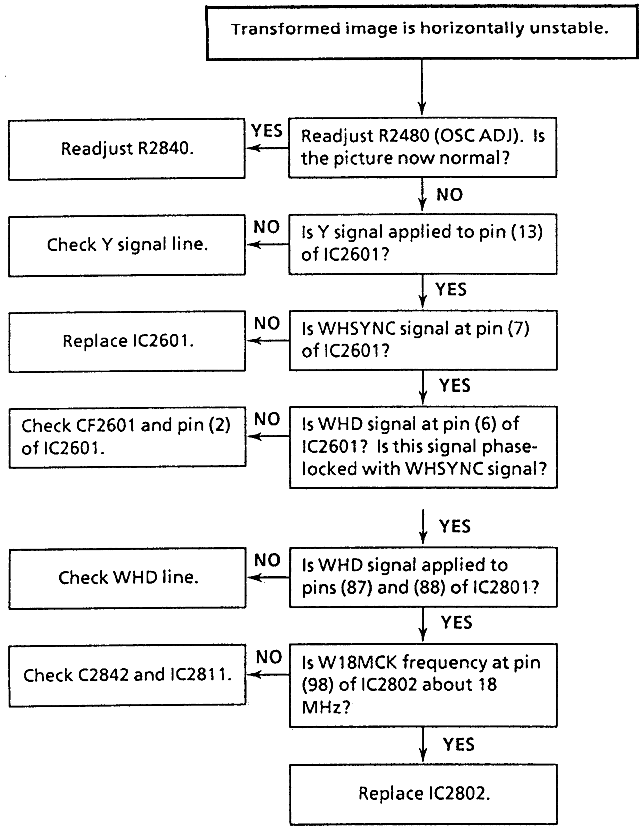
Table 1

S5011	Pin(32) SW525	Pin(31) SW SECAM
AUTO	H	H
PAL	L	L
NTSC	H	L
MESECAM	L	H

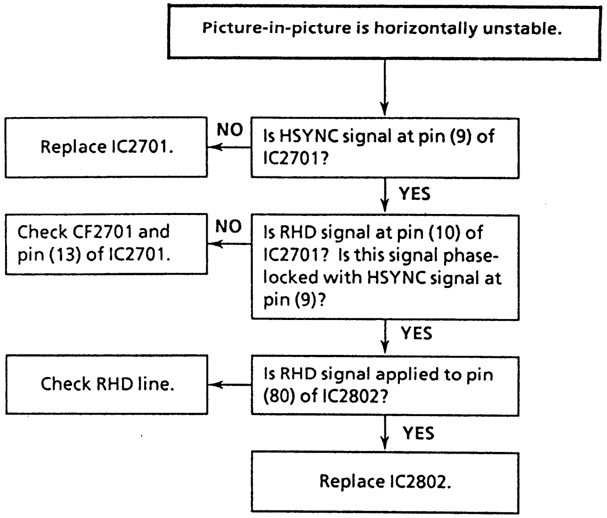
Table 2

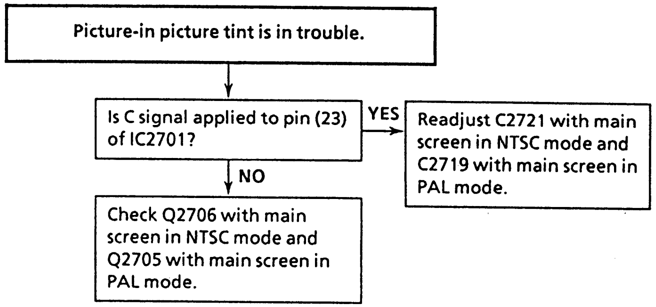
EE signal or play tape	Pin(91) DEC525	Pin(92) DEC SECAM
PAL	L	L
NTSC	H	L
MESECAM	L	H

FLOW CHART NO. 31


Transformed image is horizontally unstable.
Readjust R2840.
YES
Readjust R2480 (OSC ADJ). Is the picture now normal?
NO
Check Y signal line.
NO
Is Y signal applied to pin (13) of IC2601?
YES
Replace IC2601.
NO
Is WHSYNC signal at pin (7) of IC2601?
YES
Check CF2601 and pin (2) of IC2601.
NO
Is WHD signal at pin (6) of IC2601? Is this signal phase-locked with WHSYNC signal?
YES
Check WHD line.
NO
Is WHD signal applied to pins (87) and (88) of IC2801?
YES
Check C2842 and IC2811.
NO
Is W18MCK frequency at pin (98) of IC2802 about 18 MHz?
YES
Replace IC2802.

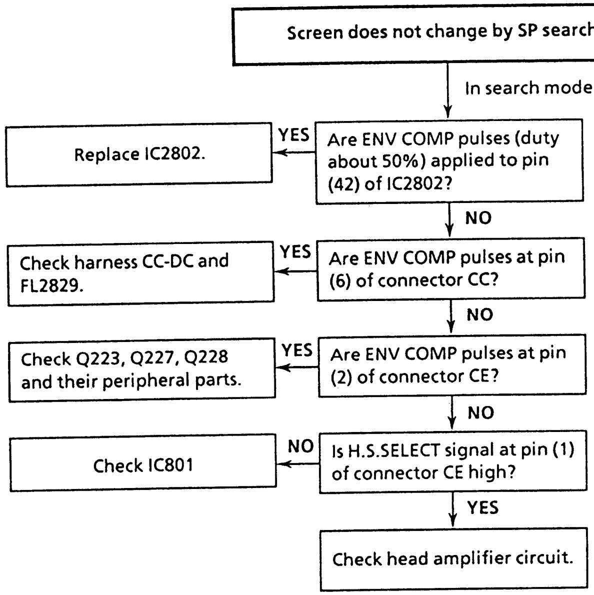
FLOW CHART NO. 32


Picture-in-picture is horizontally unstable.
Replace IC2701.
NO
Is HSYNC signal at pin (9) of IC2701?
YES
Check CF2701 and pin (13) of IC2701.
NO
Is RHD signal at pin (10) of IC2701? Is this signal phase-locked with HSYNC signal at pin (9)?
YES
Check RHD line.
Is RHD signal applied to pin (80) of IC2802?
YES
Replace IC2802.

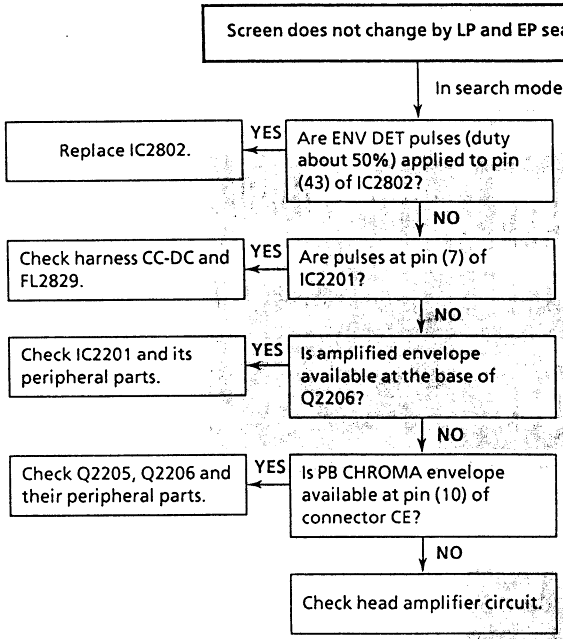

Picture-in picture tint is in trouble.
Is C signal applied to pin (23) of IC2701?
YES
Readjust C2721 with main screen in NTSC mode and C2719 with main screen in PAL mode.
NO
Check Q2706 with main screen in NTSC mode and Q2705 with main screen in PAL mode.

DIGITAL SEARCH TROUBLESHOOTING

FLOW CHART NO. 33

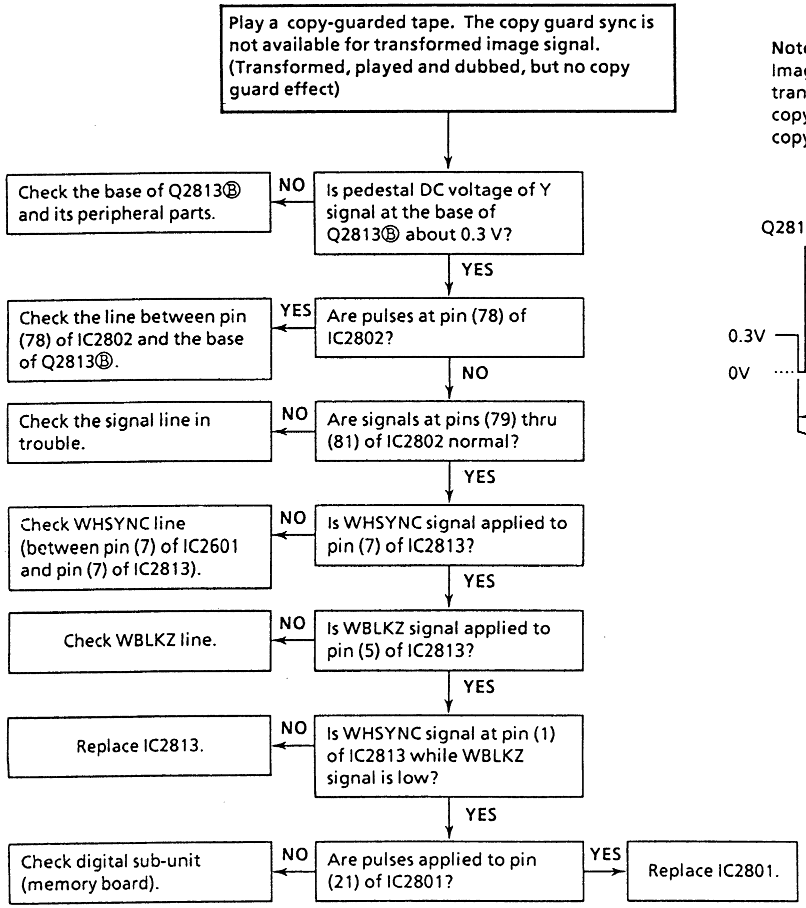

Screen does not change by SP search.
In search mode
Are ENV COMP pulses (duty about 50%) applied to pin (42) of IC2802?
YES
Replace IC2802.
NO
Are ENV COMP pulses at pin (6) of connector CC?
YES
Check harness CC-DC and FL2829.
NO
Are ENV COMP pulses at pin (2) of connector CE?
YES
Check Q223, Q227, Q228 and their peripheral parts.
NO
Is H.S.SELECT signal at pin (1) of connector CE high?
NO
Check IC801
YES
Check head amplifier circuit.

FLOW CHART NO. 34

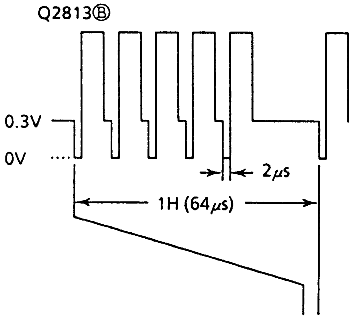

Screen does not change by LP and EP search.
In search mode
Are ENV DET pulses (duty about 50%) applied to pin (43) of IC2802?
YES
Replace IC2802.
NO
Are pulses at pin (7) of IC2201?
YES
Check harness CC-DC and FL2829.
NO
Is amplified envelope available at the base of Q2206?
YES
Check IC2201 and its peripheral parts.
NO
Is PB CHROMA envelope available at pin (10) of connector CE?
YES
Check Q2205, Q2206 and their peripheral parts.
NO
Check head amplifier circuit.

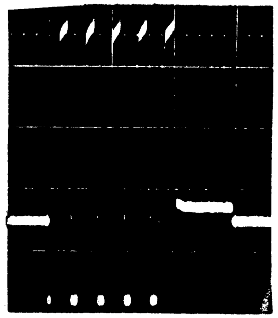
COPY GUARD TROUBLESHOOTING

FLOW CHART NO. 35

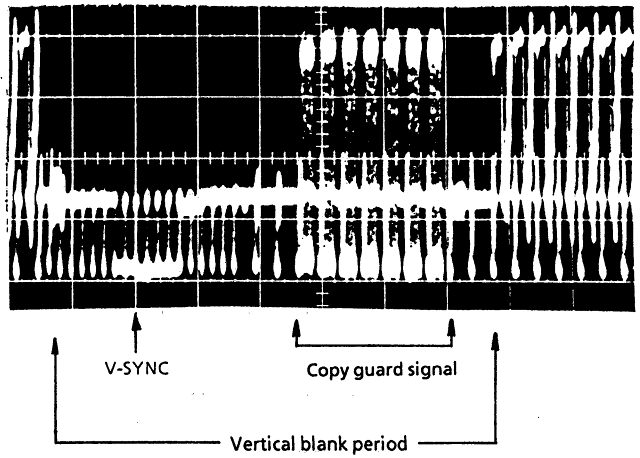

Play a copy-guarded tape. The copy guard sync is not available for transformed image signal. (Transformed, played and dubbed, but no copy guard effect)
Is pedestal DC voltage of Y signal at the base of Q2813Ⓑ about 0.3 V?
NO
Check the base of Q2813Ⓑ and its peripheral parts.
YES
Are pulses at pin (78) of IC2802?
YES
Check the line between pin (78) of IC2802 and the base of Q2813Ⓑ.
NO
Are signals at pins (79) thru (81) of IC2802 normal?
NO
Check the signal line in trouble.
YES
Is WHSYNC signal applied to pin (7) of IC2813?
NO
Check WHSYNC line (between pin (7) of IC2601 and pin (7) of IC2813).
YES
Is WBLKZ signal applied to pin (5) of IC2813?
NO
Check WBLKZ line.
YES
Is WHSYNC signal at pin (1) of IC2813 while WBLKZ signal is low?
NO
Replace IC2813.
YES
Are pulses applied to pin (21) of IC2801?
NO
Check digital sub-unit (memory board).
YES
Replace IC2801.

Note:
Images can be available by playing and transforming a tape with copy guard signals. For copyright protection, however, make sure that the copy guard signal restoration circuit functions well.

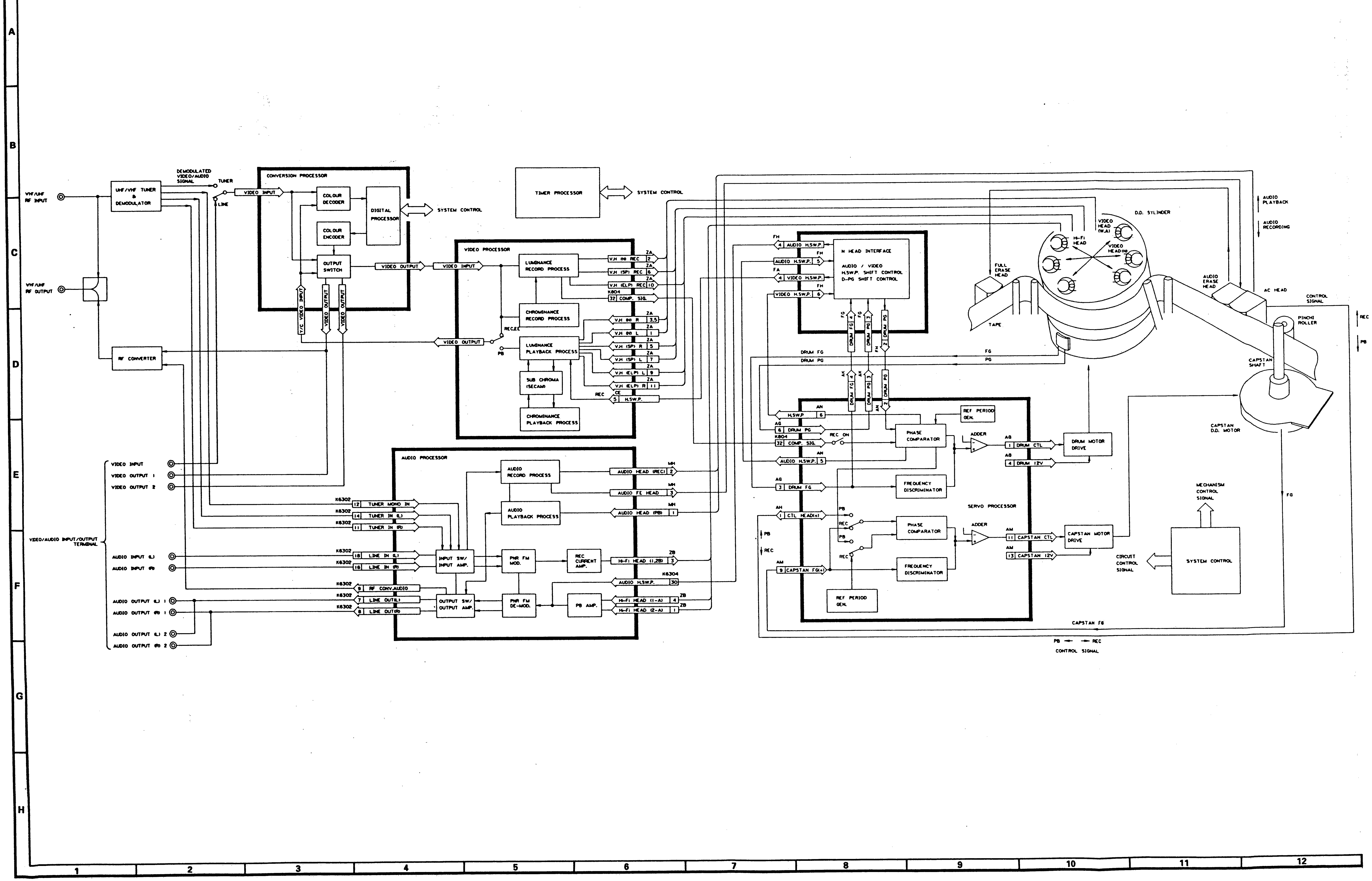

Q2813Ⓑ
0.3V
0V
2μs
1H (64μs)


0.2V/div

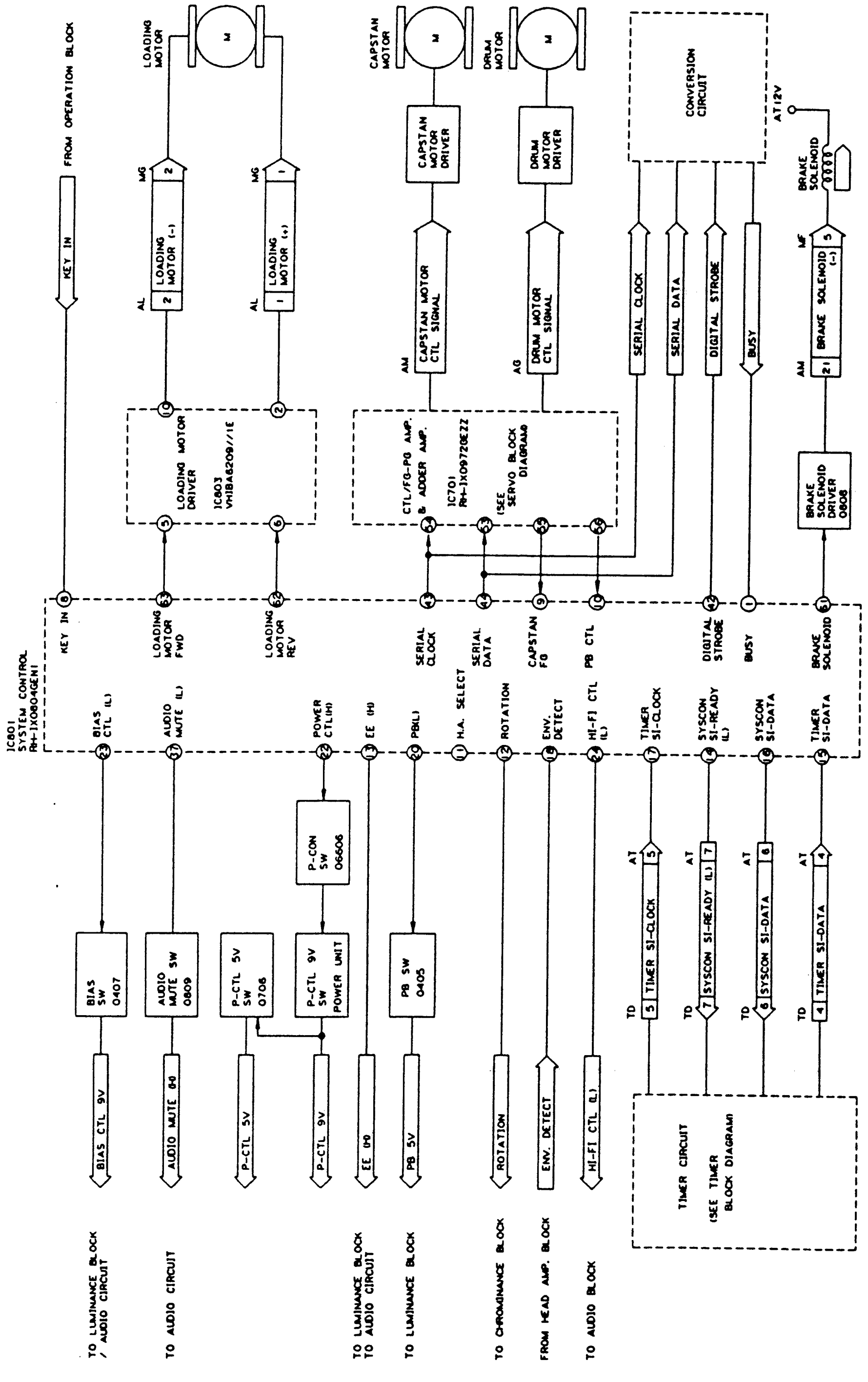
Copy-guarded video signal (NTSC)



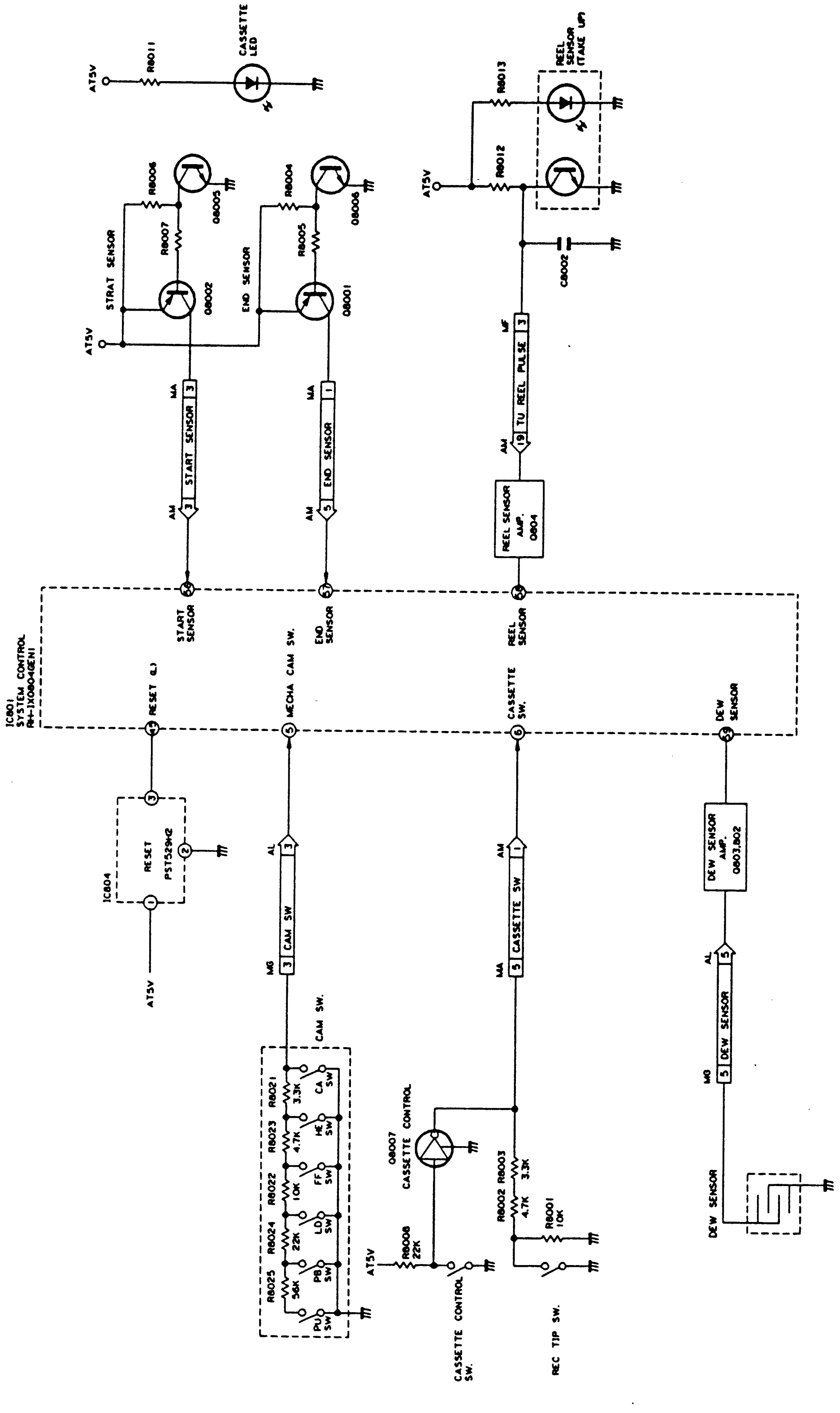
OVERALL BLOCK DIAGRAM


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
VHF/UHF RF INPUT
VHF/UHF RF OUTPUT
UHF/VHF TUNER & DEMODULATOR
DEMODULATED VIDEO/AUDIO SIGNAL
TUNER
LINE
RF CONVERTER
CONVERSION PROCESSOR
VIDEO INPUT
COLOUR DECODER
COLOUR ENCODER
DIGITAL PROCESSOR
SYSTEM CONTROL
OUTPUT SWITCH
VIDEO OUTPUT
Y/C VIDEO INPUT
VIDEO OUTPUT
VIDEO OUTPUT
TIMER PROCESSOR
SYSTEM CONTROL
VIDEO PROCESSOR
VIDEO INPUT
LUMINANCE RECORD PROCESS
CHROMINANCE RECORD PROCESS
REC,CE
VIDEO OUTPUT
PB
LUMINANCE PLAYBACK PROCESS
SUB CHROMA (SECAM)
CHROMINANCE PLAYBACK PROCESS
ZA V.H (N) REC 2
ZA V.H (SP) REC 6
ZA V.H (ELP) REC 10
K804 32 COMP. SIG.
ZA V.H (N) R 3,5
ZA V.H (N) L 1
ZA V.H (SP) R 5
ZA V.H (SP) L 7
ZA V.H (ELP) L 9
ZA V.H (ELP) R 11
REC CE 5 H.SW.P.
VIDEO/AUDIO INPUT/OUTPUT TERMINAL
VIDEO INPUT
VIDEO OUTPUT 1
VIDEO OUTPUT 2
AUDIO INPUT (L)
AUDIO INPUT (R)
AUDIO OUTPUT (L) 1
AUDIO OUTPUT (R) 1
AUDIO OUTPUT (L) 2
AUDIO OUTPUT (R) 2
AUDIO PROCESSOR
K6302 12 TUNER MONO IN
K6302 14 TUNER IN (L)
K6302 11 TUNER IN (R)
K6302 18 LINE IN (L)
K6302 16 LINE IN (R)
K6302 9 RF CONV.AUDIO
K6302 7 LINE OUT(L)
K6302 8 LINE OUT(R)
AUDIO RECORD PROCESS
AUDIO PLAYBACK PROCESS
INPUT SW/ INPUT AMP.
OUTPUT SW/ OUTPUT AMP.
PNR FM MOD.
PNR FM DE-MOD.
REC CURRENT AMP.
PB AMP.
MH AUDIO HEAD (REC) 2
MH AUDIO FE HEAD 3
MH AUDIO HEAD (PB) 1
ZB Hi-Fi HEAD (1,2B) 3
K6304 AUDIO H.SW.P. 30
ZB Hi-Fi HEAD (1-A) 4
ZB Hi-Fi HEAD (2-A) 1
FH 4 AUDIO H.SW.P.
FH AUDIO H.SW.P. 5
FA 4 VIDEO H.SW.P.
FH VIDEO H.SW.P. 6
N HEAD INTERFACE
AUDIO / VIDEO H.SW.P. SHIFT CONTROL D-PG SHIFT CONTROL
FG 4 DRUM FG
FG 3 DRUM PG
FH 2 DRUM PG
DRUM FG
DRUM PG
FG
PG
AK 4 DRUM FG
AK 3 DRUM PG
AN 2 DRUM PG
AN H.SW.P 6
AG 6 DRUM PG
K804 32 COMP. SIG.
REC ON
AN AUDIO H.SW.P. 5
AG 3 DRUM FG
REF PERIOD GEN.
PHASE COMPARATOR
ADDER
FREQUENCY DISCRIMINATOR
AG 1 DRUM CTL
AG 4 DRUM 12V
DRUM MOTOR DRIVE
SERVO PROCESSOR
AH 1 CTL HEAD(+)
PB
REC
PB
REC
PB
REC
AM 9 CAPSTAN FG(+)
PHASE COMPARATOR
ADDER
FREQUENCY DISCRIMINATOR
REF PERIOD GEN.
AM 11 CAPSTAN CTL
AM 13 CAPSTAN 12V
CAPSTAN MOTOR DRIVE
CIRCUIT CONTROL SIGNAL
SYSTEM CONTROL
MECHANISM CONTROL SIGNAL
CAPSTAN FG
PB ← → REC
CONTROL SIGNAL
D.D. SYLINDER
VIDEO HEAD (W.A)
Hi-Fi HEAD
VIDEO HEAD(N)
FULL ERASE HEAD
TAPE
AUDIO ERASE HEAD
AC HEAD
AUDIO PLAYBACK
AUDIO RECORDING
CONTROL SIGNAL
PINCH ROLLER
REC
PB
CAPSTAN SHAFT
CAPSTAN D.D. MOTOR
FG

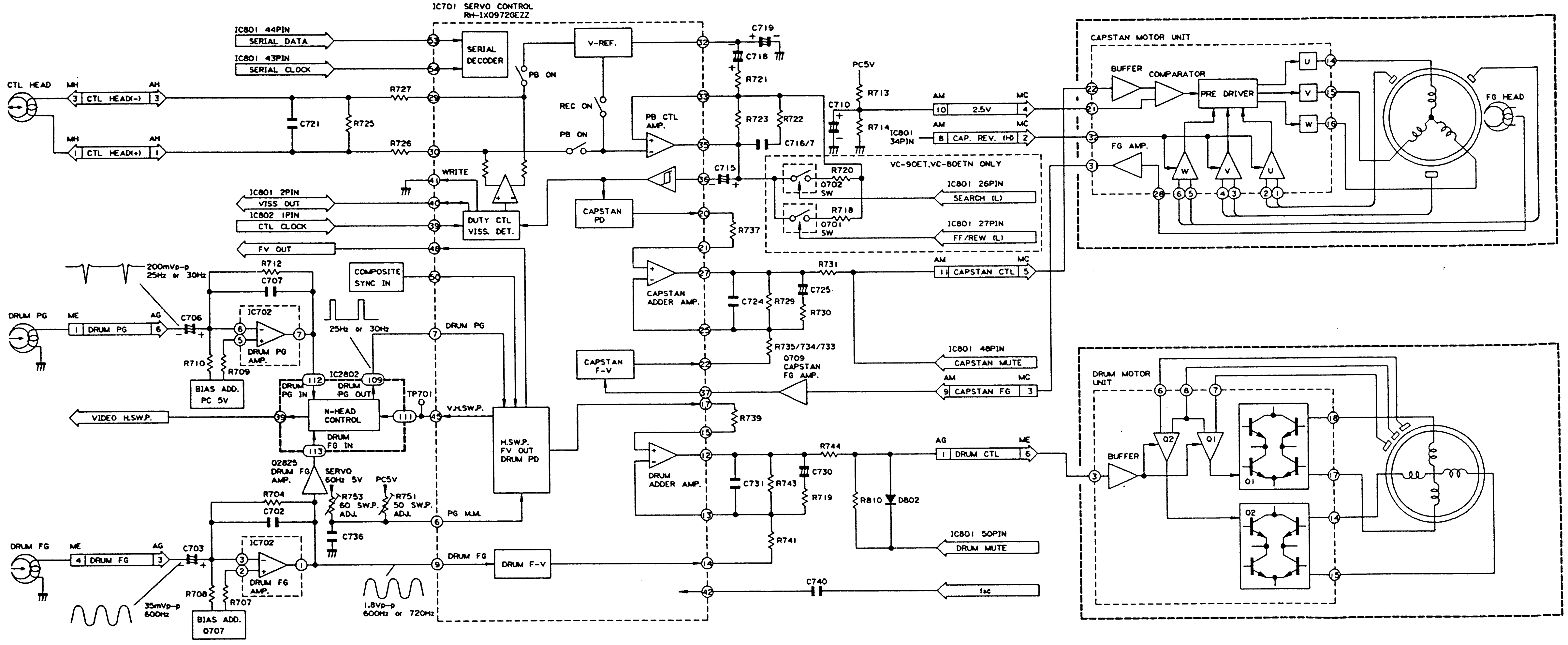
SYSTEM CONTROL BLOCK DIAGRAM


IC801
SYSTEM CONTROL
RH-IX0804GEN1
KEY IN
FROM OPERATION BLOCK
TO LUMINANCE BLOCK / AUDIO CIRCUIT
BIAS CTL 9V
BIAS SW Q407
BIAS CTL (L)
TO AUDIO CIRCUIT
AUDIO MUTE (H)
AUDIO MUTE SW Q809
AUDIO MUTE (L)
P-CTL 5V
P-CTL 5V SW Q706
P-CTL 9V
P-CTL 9V SW POWER UNIT
P-CON SW Q6606
POWER CTL(H)
TO LUMINANCE BLOCK TO AUDIO CIRCUIT
EE (H)
TO LUMINANCE BLOCK
PB 5V
PB SW Q405
PB(L)
H.A. SELECT
TO CHROMINANCE BLOCK
ROTATION
FROM HEAD AMP. BLOCK
ENV. DETECT
TO AUDIO BLOCK
HI-FI CTL (L)
TIMER CIRCUIT
(SEE TIMER BLOCK DIAGRAM)
TD
AT
TIMER SI-CLOCK
SYSCON SI-READY (L)
SYSCON SI-DATA
TIMER SI-DATA
LOADING MOTOR FWD
LOADING MOTOR REV
LOADING MOTOR DRIVER
IC803
VHIBA6209//1E
AL
MG
LOADING MOTOR (-)
LOADING MOTOR (+)
LOADING MOTOR
M
SERIAL CLOCK
SERIAL DATA
CAPSTAN FG
PB CTL
CTL/FG-PG AMP. & ADDER AMP.
IC701
RH-IX0972CEZZ
(SEE SERVO BLOCK DIAGRAM)
AM
CAPSTAN MOTOR CTL SIGNAL
CAPSTAN MOTOR DRIVER
CAPSTAN MOTOR
AG
DRUM MOTOR CTL SIGNAL
DRUM MOTOR DRIVER
DRUM MOTOR
SERIAL CLOCK
SERIAL DATA
DIGITAL STROBE
BUSY
CONVERSION CIRCUIT
BRAKE SOLENOID
BRAKE SOLENOID DRIVER Q808
AM
MF
BRAKE SOLENOID (-)
AT12V
BRAKE SOLENOID

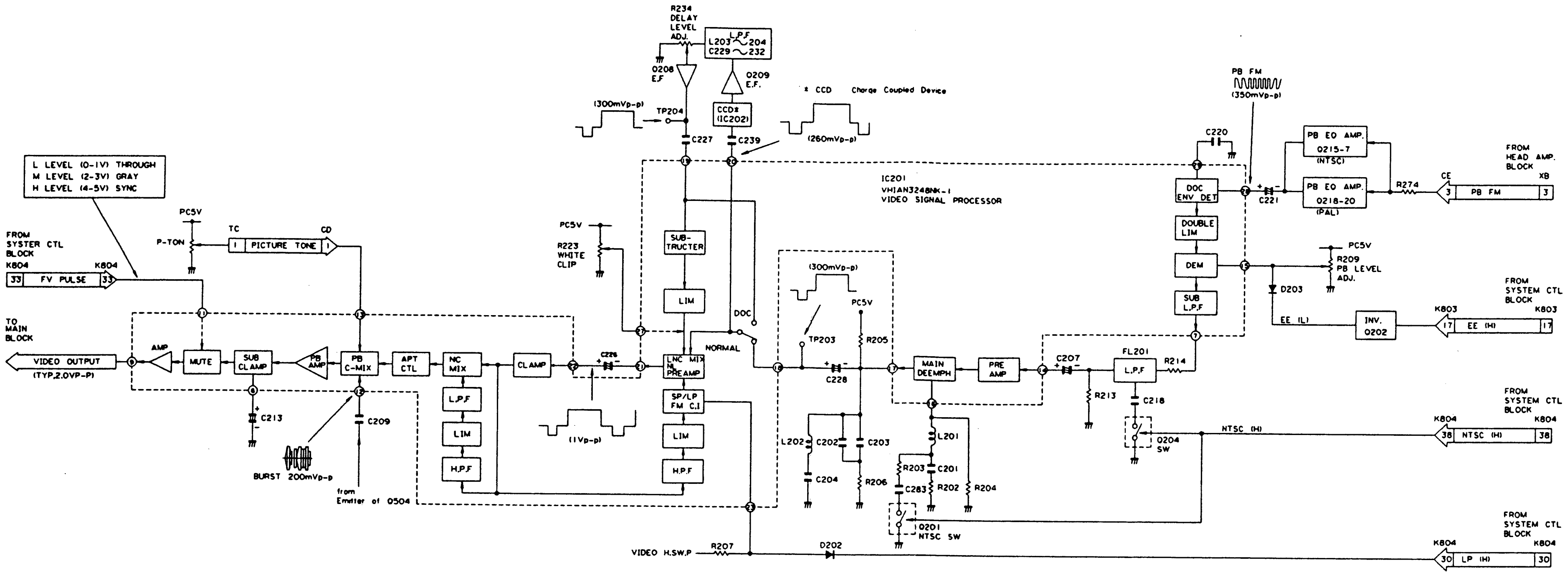
SAFETY DEVICE BLOCK DIAGRAM


IC801
SYSTEM CONTROL
RH-IX0804GEN1
IC804
RESET
PST529H2
AT5V
RESET (L)
START SENSOR
AM
MA
START SENSOR
AT5V
STRAT SENSOR
R8006
R8007
Q8002
Q8005
END SENSOR
R8004
R8005
Q8001
Q8006
END SENSOR
AT5V
R8011
CASSETTE LED
R8025
R8024
R8022
R8023
R8021
56K
22K
10K
4.7K
3.3K
PU SW
PB SW
LD SW
FF SW
HE SW
CA SW
CAM SW.
MG
AL
CAM SW
MECHA CAM SW.
AT5V
R8008
22K
Q8007
CASSETTE CONTROL
CASSETTE CONTROL SW.
R8002
R8003
4.7K
3.3K
REC TIP SW.
R8001
10K
MA
AM
CASSETTE SW
CASSETTE SW.
REEL SENSOR
REEL SENSOR AMP. Q804
AM
MF
TU REEL PULSE
C8002
AT5V
R8012
R8013
REEL SENSOR (TAKE UP)
DEW SENSOR
MG
AL
DEW SENSOR
DEW SENSOR AMP. Q803,802
DEW SENSOR

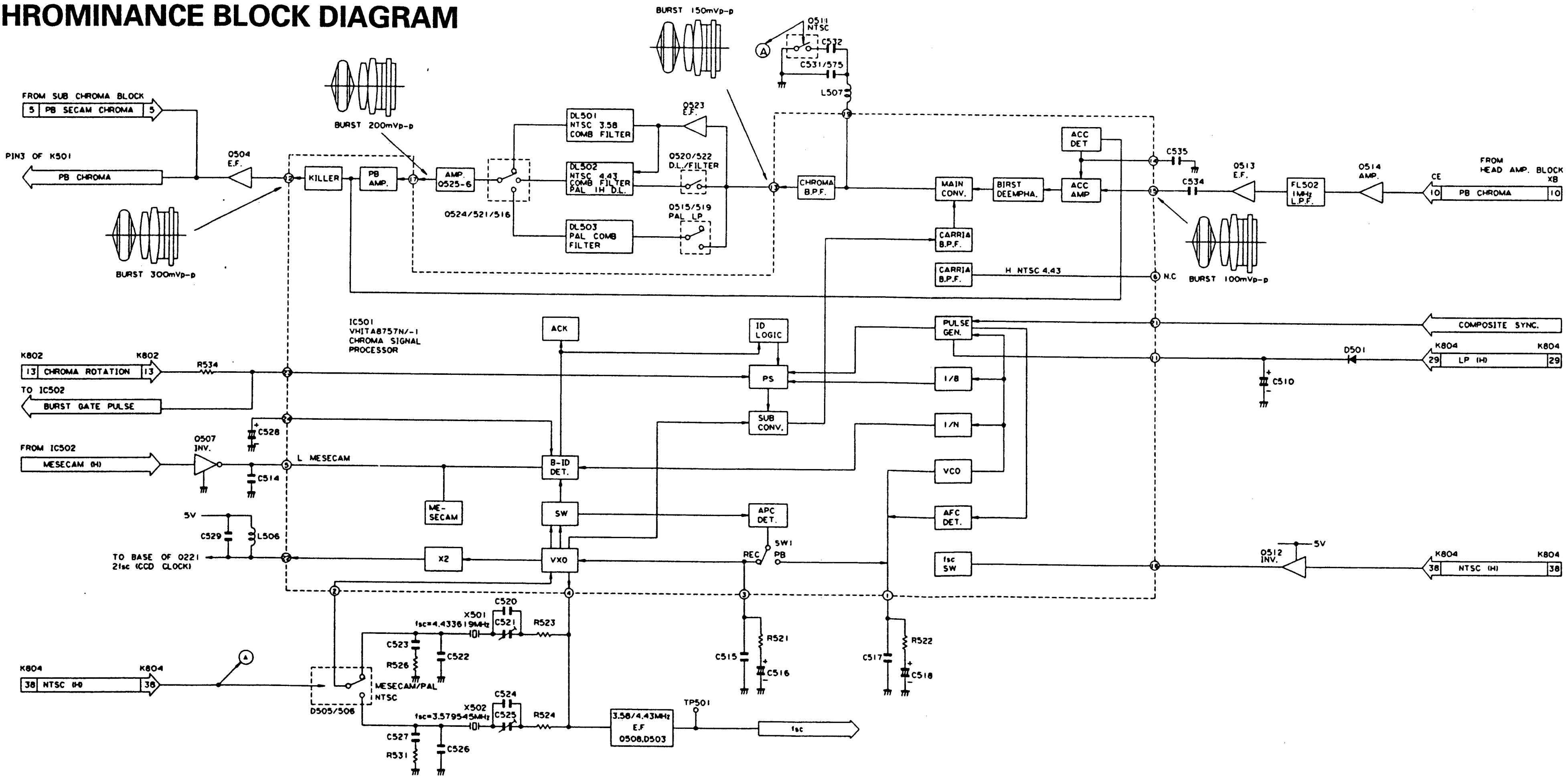
SERVO PROCESS BLOCK DIAGRAM


IC701 SERVO CONTROL
RH-IX0972GEZZ
IC801 44PIN
SERIAL DATA
IC801 43PIN
SERIAL CLOCK
SERIAL DECODER
V-REF.
PB ON
REC ON
PB ON
PB CTL AMP.
CTL HEAD
MH
AH
CTL HEAD(-)
CTL HEAD(+)
C721
R725
R727
R726
WRITE
IC801 2PIN
VISS OUT
IC802 1PIN
CTL CLOCK
FV OUT
DUTY CTL VISS. DET.
CAPSTAN PD
COMPOSITE SYNC IN
200mVp-p
25Hz or 30Hz
R712
C707
C706
DRUM PG
ME
AG
IC702
DRUM PG AMP.
R710
R709
BIAS ADD. PC 5V
25Hz or 30Hz
IC2802
DRUM PG IN
DRUM PG OUT
N-HEAD CONTROL
DRUM FG IN
TP701
V.H.SW.P.
VIDEO H.SW.P.
H.SW.P. FV OUT DRUM PD
Q2825
DRUM FG AMP.
SERVO 60Hz 5V
PC5V
R704
R753
R751
60 SW.P. ADJ.
50 SW.P. ADJ.
C702
C736
PG M.M.
DRUM FG
C703
DRUM FG AMP.
R708
R707
BIAS ADD. Q707
35mVp-p
600Hz
1.8Vp-p
600Hz or 720Hz
DRUM F-V
C719
C718
R721
R723
R722
C716/7
C715
C710
PC5V
R713
R714
IC801 34PIN
2.5V
CAP. REV. (H)
R720
Q702 SW
R718
Q701 SW
VC-90ET,VC-80ETN ONLY
IC801 26PIN
SEARCH (L)
IC801 27PIN
FF/REW (L)
R737
CAPSTAN ADDER AMP.
C724
R729
C725
R730
R731
CAPSTAN CTL
R735/734/733
Q709 CAPSTAN FG AMP.
CAPSTAN F-V
IC801 48PIN
CAPSTAN MUTE
CAPSTAN FG
R739
DRUM ADDER AMP.
C731
R743
C730
R744
R719
R741
R810
D802
DRUM CTL
IC801 50PIN
DRUM MUTE
C740
fsc
CAPSTAN MOTOR UNIT
BUFFER
COMPARATOR
PRE DRIVER
FG AMP.
U
V
W
FG HEAD
DRUM MOTOR UNIT
BUFFER
Q1
Q2
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

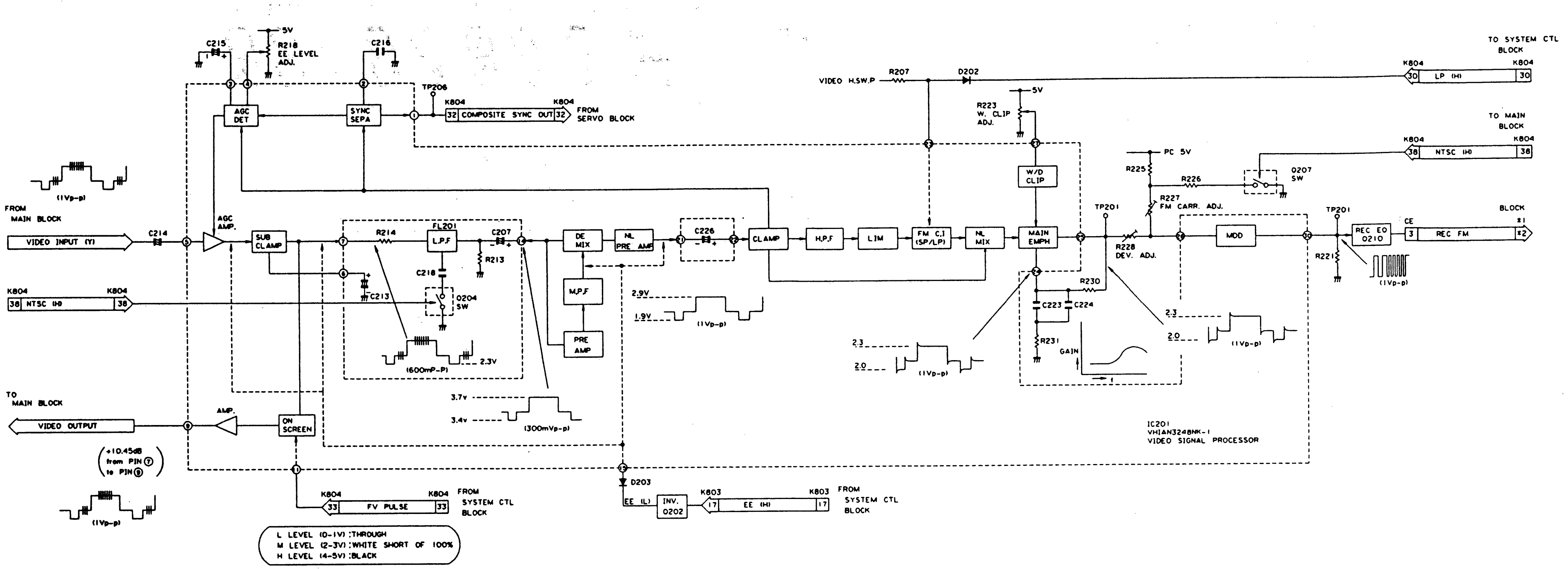
PLAYBACK LUMINANCE BLOCK DIAGRAM


R234
DELAY
LEVEL
ADJ.
L.P.F
L203 ~ 204
C229 ~ 232
Q208
E.F
Q209
E.F.
* CCD Charge Coupled Device
(300mVp-p)
TP204
CCD*
(IC202)
C227
C239
(260mVp-p)
PB FM
(350mVp-p)
C220
PB EQ AMP.
Q215-7
(NTSC)
PB EQ AMP.
Q218-20
(PAL)
FROM
HEAD AMP.
BLOCK
CE
XB
R274
3 PB FM 3
C221
IC201
VHIAN3248NK-1
VIDEO SIGNAL PROCESSOR
DOC
ENV DET
DOUBLE
LIM
DEM
SUB
L.P.F
PC5V
R209
PB LEVEL
ADJ.
D203
L LEVEL (0-1V) THROUGH
M LEVEL (2-3V) GRAY
H LEVEL (4-5V) SYNC
PC5V
P-TON
TC
CD
1 PICTURE TONE 1
FROM
SYSTER CTL
BLOCK
K804
K804
33 FV PULSE 33
PC5V
R223
WHITE
CLIP
SUB-
TRUCTER
LIM
DOC
NORMAL
(300mVp-p)
PC5V
TP203
R205
C228
FROM
SYSTEM CTL
BLOCK
K803
K803
EE (L)
INV.
Q202
17 EE (H) 17
TO
MAIN
BLOCK
VIDEO OUTPUT
(TYP.2.0VP-P)
AMP
MUTE
SUB
CLAMP
PB
AMP
PB
C-MIX
APT
CTL
NC
MIX
CLAMP
C226
LNC MIX
NL
PREAMP
MAIN
DEEMPH
PRE
AMP
C207
FL201
L.P.F
R214
R213
C218
C213
C209
L.P.F
LIM
H.P.F
(1Vp-p)
SP/LP
FM C.I
LIM
H.P.F
L202
C202
C203
C204
R206
L201
R203
C201
C283
R202
R204
Q204
SW
NTSC (H)
FROM
SYSTEM CTL
BLOCK
K804
K804
38 NTSC (H) 38
BURST 200mVp-p
from
Emitter of Q504
Q201
NTSC SW
VIDEO H.SW.P
R207
D202
FROM
SYSTEM CTL
BLOCK
K804
K804
30 LP (H) 30

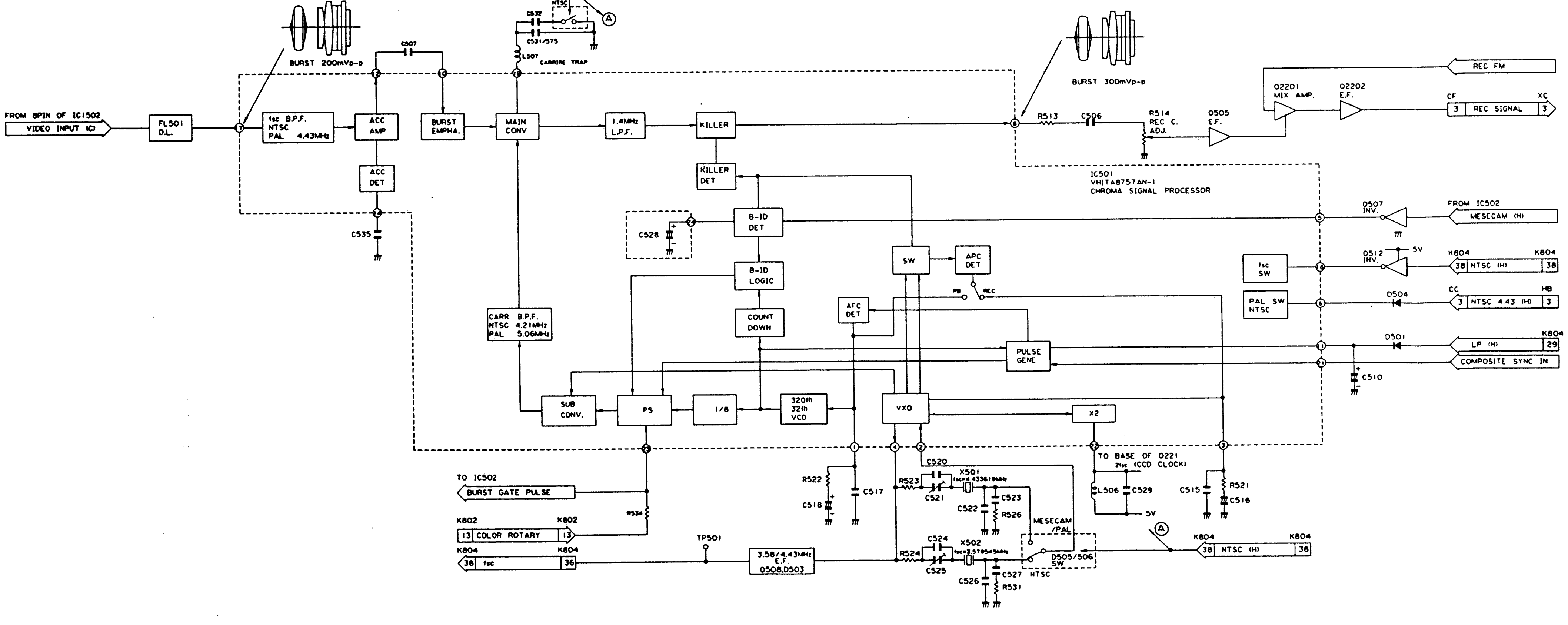
PLAYBACK CHROMINANCE BLOCK DIAGRAM


BURST 150mVp-p
Q511
NTSC
A
C532
C531/575
L507
FROM SUB CHROMA BLOCK
5 PB SECAM CHROMA 5
BURST 200mVp-p
DL501
NTSC 3.58
COMB FILTER
Q523
E.F.
ACC
DET
C535
TO PIN3 OF K501
PB CHROMA
Q504
E.F.
KILLER
PB
AMP.
AMP.
Q525-6
DL502
NTSC 4.43
COMB FILTER
PAL 1H D.L.
Q520/522
D.L./FILTER
CHROMA
B.P.F.
MAIN
CONV.
BIRST
DEEMPHA.
ACC
AMP
C534
Q513
E.F.
FL502
1MHz
L.P.F.
Q514
AMP.
FROM
HEAD AMP. BLOCK
CE
XB
10 PB CHROMA 10
Q524/521/516
Q515/519
PAL LP
DL503
PAL COMB
FILTER
CARRIA
B.P.F.
CARRIA
B.P.F.
H NTSC 4.43
N.C
BURST 300mVp-p
BURST 100mVp-p
IC501
VHITA8757N/-1
CHROMA SIGNAL
PROCESSOR
ACK
ID
LOGIC
PULSE
GEN.
COMPOSITE SYNC.
K802
K802
13 CHROMA ROTATION 13
R534
PS
1/8
D501
K804
K804
29 LP (H) 29
C510
TO IC502
BURST GATE PULSE
SUB
CONV.
1/N
C528
FROM IC502
MESECAM (H)
Q507
INV.
L MESECAM
C514
B-ID
DET.
VCO
ME-
SECAM
5V
C529
L506
SW
APC
DET.
AFC
DET.
SW1
REC
PB
TO BASE OF Q221
2fsc (CCD CLOCK)
X2
VXO
fsc
SW
Q512
INV.
5V
K804
K804
38 NTSC (H) 38
C520
X501
fsc=4.433619MHz
C521
R523
C523
C522
R526
C515
R521
C516
C517
R522
C518
K804
K804
38 NTSC (H) 38
A
MESECAM/PAL
NTSC
D505/506
C524
X502
fsc=3.579545MHz
C525
R524
3.58/4.43MHz
E.F
Q508,Q503
TP501
fsc
C527
R531
C526

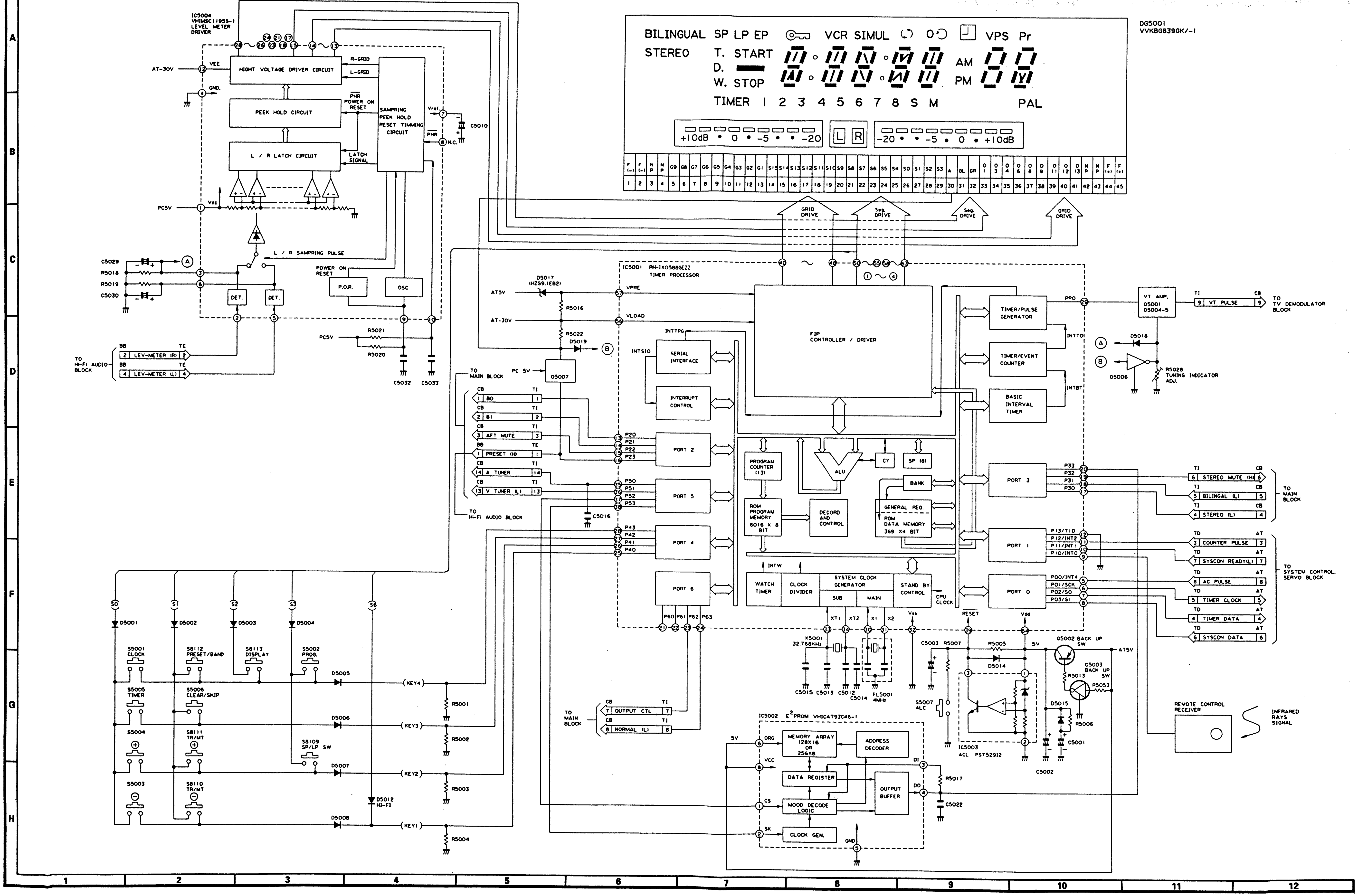
RECORDING LUMINANCE BLOCK DIAGRAM


C215
5V
R218
EE LEVEL
ADJ.
C216
TP206
AGC
DET
SYNC
SEPA
K804
32 COMPOSITE SYNC OUT 32
K804
FROM
SERVO BLOCK
(1Vp-p)
FROM
MAIN BLOCK
VIDEO INPUT (Y)
C214
AGC
AMP.
SUB
CLAMP
R214
FL201
L.P.F
C207
R213
C218
C213
0204
SW
K804
38 NTSC (H) 38
K804
(600mP-P)
2.3V
DE
MIX
NL
PRE AMP
M.P.F
PRE
AMP
2.9V
1.9V
(1Vp-p)
3.7v
3.4v
(300mVp-p)
TO
MAIN BLOCK
VIDEO OUTPUT
AMP.
ON
SCREEN
(+10.45dB
from PIN ⑦
to PIN ⑨)
(1Vp-p)
K804
33 FV PULSE 33
K804
FROM
SYSTEM CTL
BLOCK
L LEVEL (0-1V) :THROUGH
M LEVEL (2-3V) :WHITE SHORT OF 100%
H LEVEL (4-5V) :BLACK
D203
EE (L)
INV.
0202
K803
17 EE (H) 17
K803
FROM
SYSTEM CTL
BLOCK
C226
CLAMP
H.P.F
LIM
FM C.I
(SP/LP)
NL
MIX
VIDEO H.SW.P
R207
D202
R223
W. CLIP
ADJ.
5V
W/D
CLIP
MAIN
EMPH
C223
C224
R230
R231
GAIN
f
2.3
2.0
(1Vp-p)
TP201
R228
DEV. ADJ.
PC 5V
R225
R226
R227
FM CARR. ADJ.
0207
SW
MOD
TP201
R221
REC EQ
0210
CE
3 REC FM ※2
※1
BLOCK
(1Vp-p)
TO SYSTEM CTL
BLOCK
K804
30 LP (H) 30
K804
TO MAIN
BLOCK
K804
38 NTSC (H) 38
K804
IC201
VHIAN3248NK-1
VIDEO SIGNAL PROCESSOR

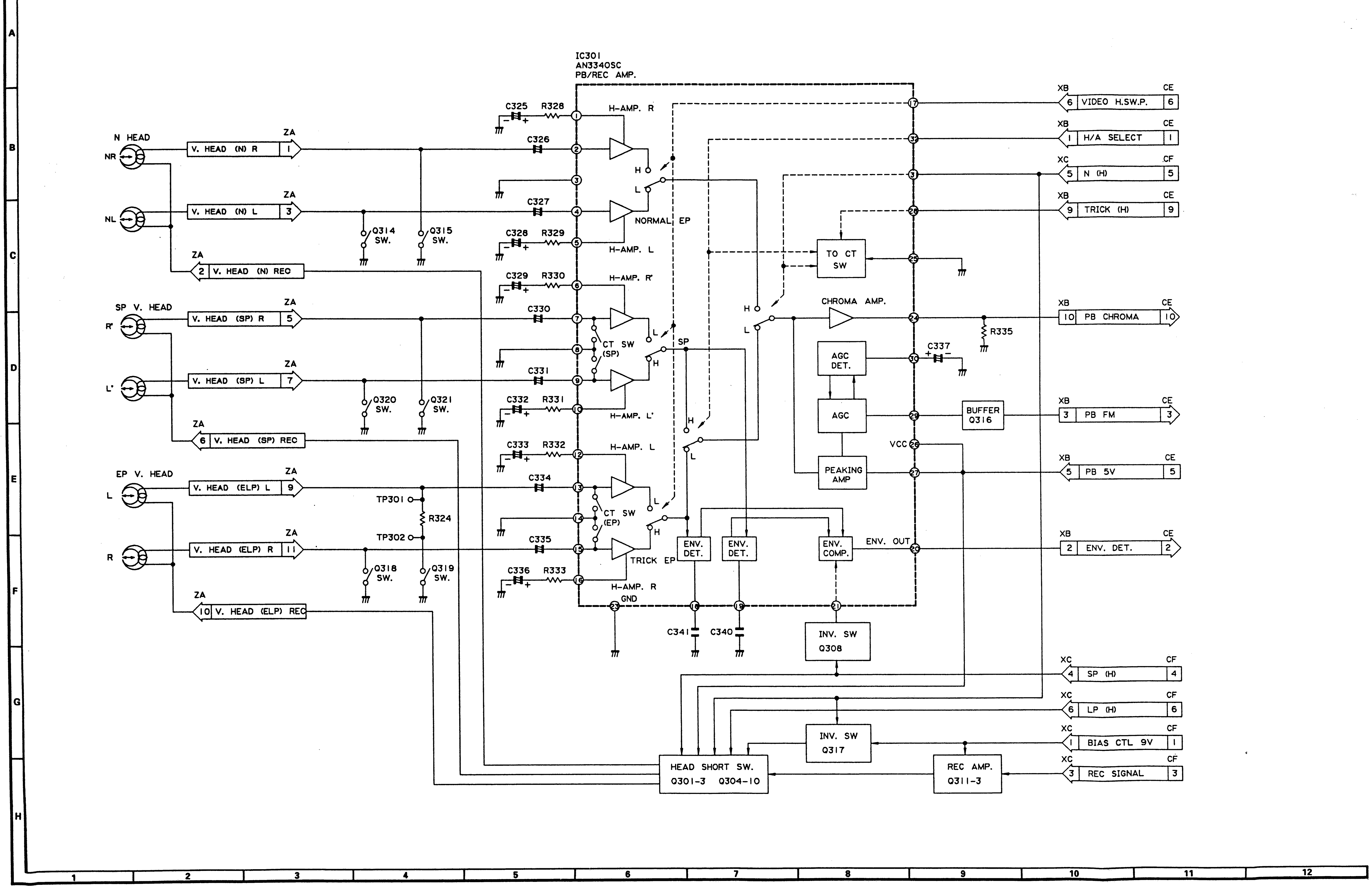
RECORDING CHROMINANCE BLOCK DIAGRAM


BURST 200mVp-p
C507
0511
NTSC
C532
C531/575
Ⓐ
L507
CARRIRE TRAP
FROM 8PIN OF IC1502
VIDEO INPUT (C)
FL501
D.L.
fsc B.P.F.
NTSC
PAL 4.43MHz
ACC
AMP
ACC
DET
C535
BURST
EMPHA.
MAIN
CONV
1.4MHz
L.P.F.
KILLER
KILLER
DET
C528
B-ID
DET
B-ID
LOGIC
COUNT
DOWN
CARR. B.P.F.
NTSC 4.21MHz
PAL 5.06MHz
SUB
CONV.
PS
1/8
320fh
32fh
VCO
AFC
DET
SW
APC
DET
PB
REC
PULSE
GENE
VXO
X2
TO IC502
BURST GATE PULSE
R534
K802
13 COLOR ROTARY 13
K802
K804
36 fsc 36
K804
TP501
3.58/4.43MHz
E.F.
0508,0503
R522
C518
C517
C520
R523
C521
X501
fsc=4.433619MHz
C522
C523
R526
MESECAM
/PAL
R524
C524
C525
X502
fsc=3.579545MHz
C526
C527
R531
NTSC
D505/506
SW
TO BASE OF 0221
2fsc (CCD CLOCK)
L506
C529
5V
C515
R521
C516
Ⓐ
K804
38 NTSC (H) 38
K804
BURST 300mVp-p
R513
C506
R514
REC C.
ADJ.
0505
E.F.
02201
MIX AMP.
02202
E.F.
REC FM
CF
3 REC SIGNAL 3
XC
IC501
VHITA8757AN-1
CHROMA SIGNAL PROCESSOR
0507
INV.
FROM IC502
MESECAM (H)
fsc
SW
0512
INV.
5V
K804
38 NTSC (H) 38
K804
PAL SW
NTSC
D504
CC
3 NTSC 4.43 (H) 3
HB
D501
LP (H) 29
K804
COMPOSITE SYNC IN
C510

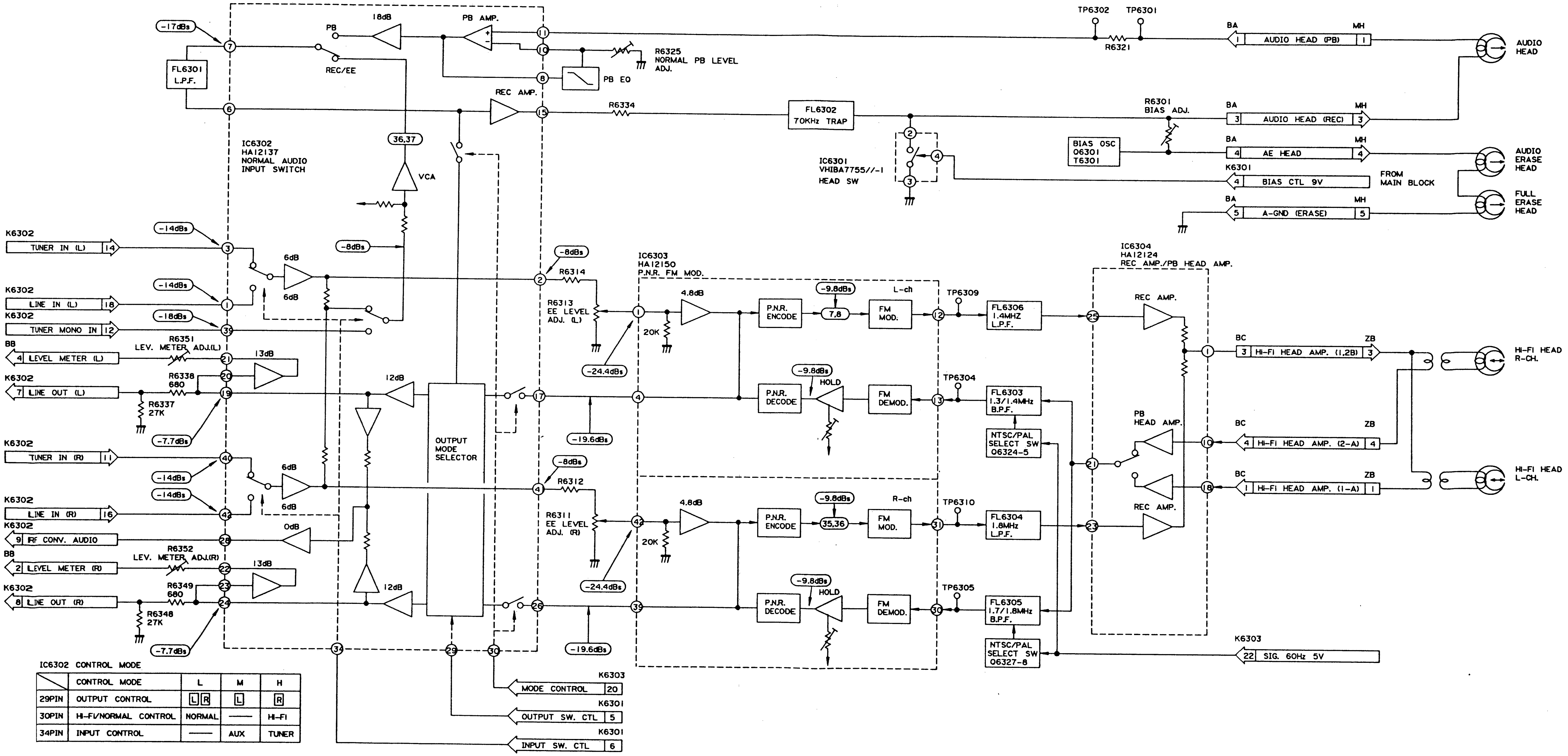
TIMER/LEVEL METER BLOCK DIAGRAM


IC5004
VHIMSC11955-1
LEVEL METER
DRIVER
28 ~ 26 24 23 21 18 17 15 14 ~ 13
AT-30V
VEE
HIGHT VOLTAGE DRIVER CIRCUIT
R-GRID
L-GRID
GND.
PEEK HOLD CIRCUIT
PHR
POWER ON
RESET
SAMPRING
PEEK HOLD
RESET TIMMING
CIRCUIT
Vref.
C5010
N.C.
L / R LATCH CIRCUIT
LATCH
SIGNAL
PC5V
Vcc
L / R SAMPRING PULSE
C5029
R5018
R5019
C5030
DET.
DET.
POWER ON
RESET
P.O.R.
OSC
R5021
R5020
C5032
C5033
TO
HI-FI AUDIO
BLOCK
BB
TE
2 LEV-METER (R) 2
4 LEV-METER (L) 4
DG5001
VVKBG839GK/-1
BILINGUAL SP LP EP VCR SIMUL VPS Pr
STEREO T. START D. W. STOP AM PM
TIMER 1 2 3 4 5 6 7 8 S M PAL
+10dB • 0 • -5 • • -20
L R
-20 • • -5 • 0 • +10dB
F(-) F(-) NP NP G9 G8 G7 G6 G5 G4 G3 G2 G1 S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S0 S1 S2 S3 A GL GR O1 O3 O4 O6 O8 O9 O11 O12 O13 NP NP F(+) F(+)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45
GRID DRIVE
Seg. DRIVE
Seg. DRIVE
GRID DRIVE
IC5001 RH-IX0588GEZZ
TIMER PROCESSOR
40 ~ 48 50 ~ 55 56 ~ 63
① ~ ④
D5017
(HZS9.1EB2)
AT5V
VPRE
R5016
AT-30V
VLOAD
R5022
D5019
INTTPG
INTSIO
SERIAL
INTERFACE
INTERRUPT
CONTROL
FIP
CONTROLLER / DRIVER
TO
MAIN BLOCK
PC 5V
Q5007
CB TI
1 B0 1
2 B1 2
3 AFT MUTE 3
BB TE
1 PRESET (H) 1
14 A TUNER 14
13 V TUNER (L) 13
TO
HI-FI AUDIO BLOCK
P20 P21 P22 P23
PORT 2
P50 P51 P52 P53
PORT 5
C5016
P43 P42 P41 P40
PORT 4
PORT 6
P60 P61 P62 P63
PROGRAM
COUNTER
(13)
ALU
CY
SP (8)
BANK
ROM
PROGRAM
MEMORY
6016 x 8
BIT
DECORD
AND
CONTROL
GENERAL REG.
ROM
DATA MEMORY
369 X4 BIT
INTW
WATCH
TIMER
CLOCK
DIVIDER
SYSTEM CLOCK
GENERATOR
SUB
MAIN
STAND BY
CONTROL
CPU
CLOCK
XT1 XT2 X1 X2
Vss
RESET
Vdd
X5001
32.768KHz
C5015 C5013 C5012
C5014
FL5001
4MHz
TIMER/PULSE
GENERATOR
PPO
INTT0
TIMER/EVENT
COUNTER
INTBT
BASIC
INTERVAL
TIMER
VT AMP.
Q5001
Q5004-5
TI CB
9 VT PULSE 9
TO
TV DEMODULATOR
BLOCK
D5018
Q5006
R5028
TUNING INDICATOR
ADJ.
PORT 3
P33 P32 P31 P30
6 STEREO MUTE (H) 6
5 BILINGAL (L) 5
4 STEREO (L) 4
TO
MAIN
BLOCK
PORT 1
P13/TI0 P12/INT2 P11/INT1 P10/INT0
TD AT
3 COUNTER PULSE 3
7 SYSCON READY(L) 7
8 AC PULSE 8
5 TIMER CLOCK 5
4 TIMER DATA 4
6 SYSCON DATA 6
TO
SYSTEM CONTROL.
SERVO BLOCK
PORT 0
P00/INT4 P01/SCK P02/SO P03/SI
C5003 R5007
R5005
5V
Q5002 BACK UP
SW
AT5V
D5014
Q5003
BACK UP
SW
R5013
R5053
S5007
ALC
IC5003
ACL PST52912
D5015
R5006
C5001
C5002
REMOTE CONTROL
RECEIVER
INFRARED
RAYS
SIGNAL
TO
MAIN
BLOCK
CB TI
7 OUTPUT CTL 7
8 NORMAL (L) 8
IC5002 E²PROM VHICAT93C46-1
5V
ORG
MEMORY ARRAY
128X16
OR
256X8
ADDRESS
DECODER
VCC
DATA REGISTER
OUTPUT
BUFFER
DI
DO
R5017
C5022
CS
MOOD DECODE
LOGIC
SK
CLOCK GEN.
GND
S0 S1 S2 S3 S6
D5001 D5002 D5003 D5004
S5001
CLOCK
S8112
PRESET/BAND
S8113
DISPLAY
S5002
PROG.
D5005
(KEY4)
R5001
S5005
TIMER
S5006
CLEAR/SKIP
D5006
(KEY3)
R5002
S5004
S8111
TR/MT
S8109
SP/LP SW
D5007
(KEY2)
R5003
S5003
S8110
TR/MT
D5012
HI-FI
D5008
(KEY1)
R5004
A B C D E F G H
1 2 3 4 5 6 7 8 9 10 11 12

HEAD AMP BLOCK DIAGRAM


IC301
AN3340SC
PB/REC AMP.
N HEAD
NR
NL
SP V. HEAD
R'
L'
EP V. HEAD
L
R
ZA
V. HEAD (N) R 1
V. HEAD (N) L 3
2 V. HEAD (N) REC
V. HEAD (SP) R 5
V. HEAD (SP) L 7
6 V. HEAD (SP) REC
V. HEAD (ELP) L 9
V. HEAD (ELP) R 11
10 V. HEAD (ELP) REC
Q314 SW.
Q315 SW.
Q320 SW.
Q321 SW.
Q318 SW.
Q319 SW.
TP301
TP302
R324
C325
R328
C326
C327
C328
R329
C329
R330
C330
C331
C332
R331
C333
R332
C334
C335
C336
R333
H-AMP. R
H-AMP. L
H-AMP. R'
H-AMP. L'
H-AMP. L
H-AMP. R
NORMAL EP
CT SW (SP)
CT SW (EP)
TRICK EP
SP
H
L
GND
TO CT SW
CHROMA AMP.
AGC DET.
AGC
PEAKING AMP
C337
R335
VCC
BUFFER Q316
ENV. DET.
ENV. DET.
ENV. COMP.
ENV. OUT
C341
C340
INV. SW Q308
INV. SW Q317
HEAD SHORT SW. Q301-3 Q304-10
REC AMP. Q311-3
XB 6 VIDEO H.SW.P. CE 6
XB 1 H/A SELECT CE 1
XC 5 N (H) CF 5
XB 9 TRICK (H) CE 9
XB 10 PB CHROMA CE 10
XB 3 PB FM CE 3
XB 5 PB 5V CE 5
XB 2 ENV. DET. CE 2
XC 4 SP (H) CF 4
XC 6 LP (H) CF 6
XC 1 BIAS CTL 9V CF 1
XC 3 REC SIGNAL CF 3
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

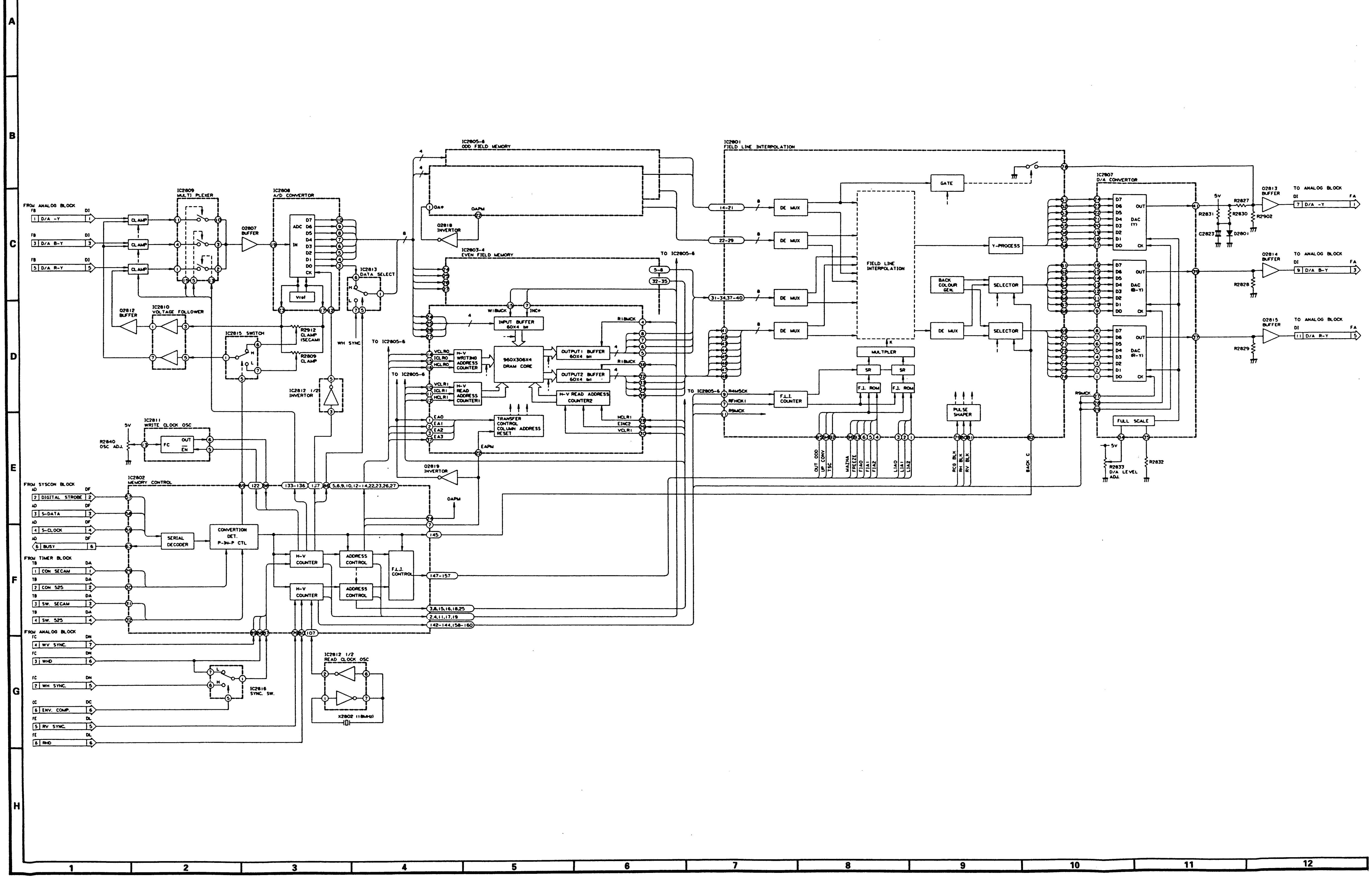
Hi-Fi AUDIO BLOCK DIAGRAM


IC6302
HA12137
NORMAL AUDIO
INPUT SWITCH
FL6301
L.P.F.
PB
REC/EE
18dB
PB AMP.
REC AMP.
PB EQ
R6325
NORMAL PB LEVEL
ADJ.
VCA
36,37
-17dBs
-14dBs
-18dBs
-8dBs
6dB
0dB
12dB
13dB
-7.7dBs
-19.6dBs
-24.4dBs
K6302
TUNER IN (L) 14
LINE IN (L) 18
TUNER MONO IN 12
BB
4 LEVEL METER (L)
R6351
LEV. METER ADJ.(L)
R6338
680
7 LINE OUT (L)
R6337
27K
TUNER IN (R) 11
LINE IN (R) 16
9 RF CONV. AUDIO
R6352
LEV. METER ADJ.(R)
2 LEVEL METER (R)
R6349
680
8 LINE OUT (R)
R6348
27K
OUTPUT
MODE
SELECTOR
R6314
R6313
EE LEVEL
ADJ. (L)
R6312
R6311
EE LEVEL
ADJ. (R)
R6334
FL6302
70KHz TRAP
IC6301
VHIBA7755//-1
HEAD SW
IC6303
HA12150
P.N.R. FM MOD.
4.8dB
20K
P.N.R.
ENCODE
P.N.R.
DECODE
-9.8dBs
7,8
35,36
HOLD
L-ch
R-ch
FM
MOD.
FM
DEMOD.
TP6309
TP6304
TP6310
TP6305
FL6306
1.4MHZ
L.P.F.
FL6303
1.3/1.4MHz
B.P.F.
NTSC/PAL
SELECT SW
06324-5
FL6304
1.8MHz
L.P.F.
FL6305
1.7/1.8MHz
B.P.F.
NTSC/PAL
SELECT SW
06327-8
IC6304
HA12124
REC AMP./PB HEAD AMP.
REC AMP.
PB
HEAD AMP.
TP6302 TP6301
R6321
R6301
BIAS ADJ.
BIAS OSC
06301
T6301
BA
MH
1 AUDIO HEAD (PB) 1
3 AUDIO HEAD (REC) 3
4 AE HEAD 4
K6301
4 BIAS CTL 9V
5 A-GND (ERASE) 5
FROM
MAIN BLOCK
AUDIO
HEAD
AUDIO
ERASE
HEAD
FULL
ERASE
HEAD
BC
ZB
3 HI-FI HEAD AMP. (1,2B) 3
4 HI-FI HEAD AMP. (2-A) 4
1 HI-FI HEAD AMP. (1-A) 1
HI-FI HEAD
R-CH.
HI-FI HEAD
L-CH.
K6303
22 SIG. 60Hz 5V
MODE CONTROL 20
OUTPUT SW. CTL 5
INPUT SW. CTL 6
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

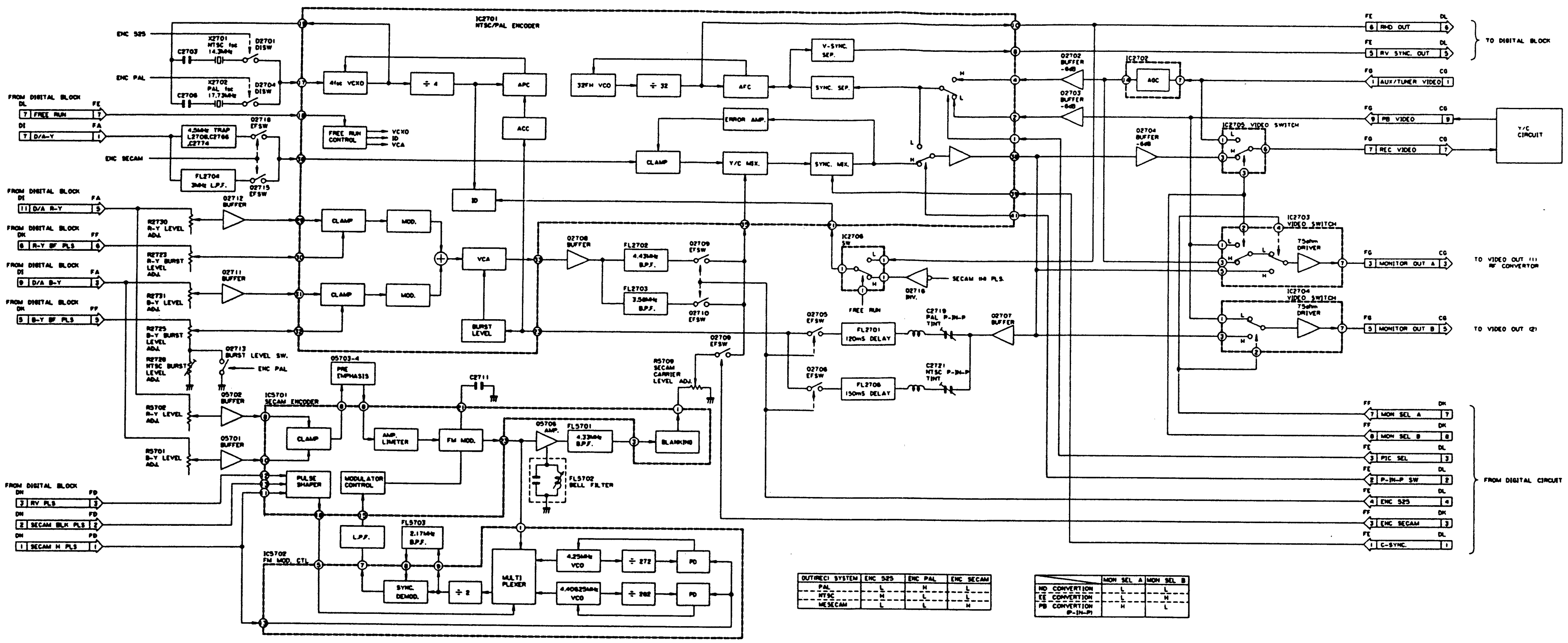
IC6302 CONTROL MODE

	CONTROL MODE	L	M	H
29PIN	OUTPUT CONTROL	L R	L	R
30PIN	HI-FI/NORMAL CONTROL	NORMAL	——	HI-FI
34PIN	INPUT CONTROL	——	AUX	TUNER

DIGITAL CIRCUIT BLOCK DIAGRAM


A
B
C
D
E
F
G
H
FROM ANALOG BLOCK
FB
DI
1 D/A -Y 1
3 D/A B-Y 3
5 D/A R-Y 5
CLAMP
IC2809
MULTI PLEXER
Q2807
BUFFER
IC2808
A/D CONVERTOR
ADC
IN
D7
D6
D5
D4
D3
D2
D1
D0
CK
Vref
IC2813
DATA SELECT
H
L
WH SYNC
Q2812
BUFFER
IC2810
VOLTAGE FOLLOWER
IC2815 SWITCH
R2912
CLAMP
(SECAM)
R2809
CLAMP
IC2812 1/2
INVERTOR
IC2811
WRITE CLOCK OSC
5V
R2840
OSC ADJ.
FC
OUT
EN
IC2805-6
ODD FIELD MEMORY
OA♦
OAPM
Q2818
INVERTOR
IC2803-4
EVEN FIELD MEMORY
TO IC2805-6
5-8
32-35
W18MCK
INC♦
INPUT BUFFER
60X4 bit
960X306X4
DRAM CORE
OUTPUT1 BUFFER
60X4 bit
OUTPUT2 BUFFER
60X4 bit
R18MCK
VCLR0
ICLR0
HCLR0
H-V
WRITING
ADDRESS
COUNTER
VCLR1
ICLR1
HCLR1
H-V
READ
ADDRESS
COUNTER1
H-V READ ADDRESS
COUNTER2
EA0
EA1
EA2
EA3
TRANSFER
CONTROL
COLUMN ADDRESS
RESET
HCLR1
EINC2
VCLR1
EAPM
Q2819
INVERTOR
OAPM
IC2801
FIELD LINE INTERPOLATION
14-21
22-29
31-34,37-40
DE MUX
GATE
FIELD LINE
INTERPOLATION
K
MULTPLER
SR
F.I. ROM
F.L.I.
COUNTER
R4M5CK
RFHCK1
R9MCK
Y-PROCESS
BACK
COLOUR
GEN.
SELECTOR
PULSE
SHAPER
OUT ODD
UP CONV
TSC
MAZNA
FREEZE
F1A0
F1A1
F1A2
L1A0
L1A1
L1A2
RCG BLK
RH BLK
RV BLK
BACK C
IC2807
D/A CONVERTOR
DAC
(Y)
(B-Y)
(R-Y)
OUT
CK
FULL SCALE
R2833
D/A LEVEL
ADJ.
R2832
5V
R2827
R2831
R2830
R2902
C2823
D2801
R2828
R2829
Q2813
BUFFER
Q2814
BUFFER
Q2815
BUFFER
TO ANALOG BLOCK
FA
7 D/A -Y 1
9 D/A B-Y 3
11 D/A R-Y 5
FROM SYSCON BLOCK
AD
DF
2 DIGITAL STROBE 2
3 S-DATA 3
4 S-CLOCK 4
6 BUSY 6
IC2802
MEMORY CONTROL
122
133-136
137
5,6,9,10,12-14,22,23,26,27
SERIAL
DECODER
CONVERTION
DET.
P-IN-P CTL
FROM TIMER BLOCK
TB
DA
1 CON SECAM 1
2 CON 525 2
3 SW. SECAM 3
4 SW. 525 4
H-V
COUNTER
ADDRESS
CONTROL
F.L.I.
CONTROL
145
147-157
3,8,15,16,18,25
2,4,11,17,19
142-144,158-160
107
FROM ANALOG BLOCK
FC
DN
4 WV SYNC. 7
3 WHD 6
2 WH SYNC. 5
CC
DC
6 ENV. COMP. 6
FE
DL
5 RV SYNC. 5
6 RHD 6
IC2816
SYNC. SW.
IC2812 1/2
READ CLOCK OSC
X2802 (18MHz)
1
2
3
4
5
6
7
8
9
10
11
12

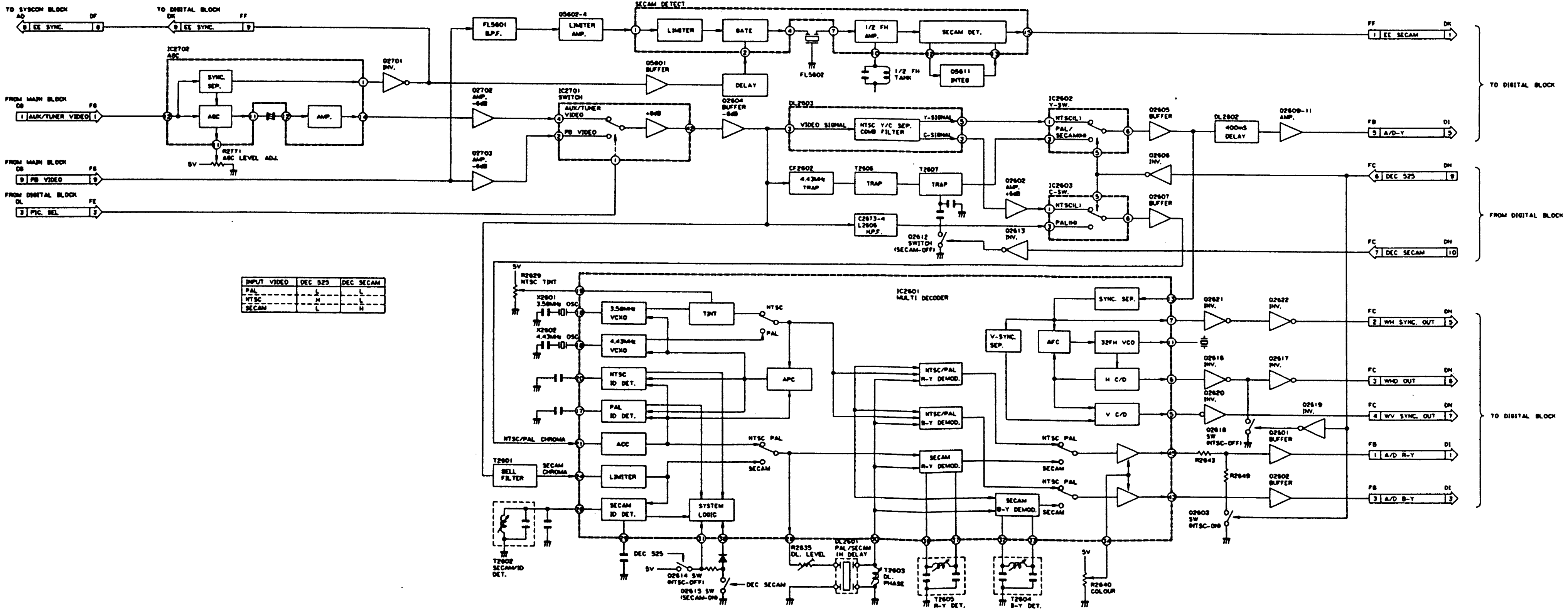
DIGITAL ENCODER CIRCUIT BLOCK DIAGRAM


IC2701 NTSC/PAL ENCODER
ENC 525
ENC PAL
ENC SECAM
X2701 NTSC fsc 14.3MHz
X2702 PAL fsc 17.73MHz
C2703
C2706
Q2701 DISW
Q2704 DISW
FROM DIGITAL BLOCK
7 FREE RUN 7
7 D/A-Y 1
4.5MHz TRAP L2708,C2766 ,C2774
FL2704 3MHz L.P.F.
Q2718 EFSW
Q2715 EFSW
4fsc VCXO
÷ 4
APC
ACC
FREE RUN CONTROL
VCXO
ID
VCA
32FH VCO
÷ 32
AFC
V-SYNC. SEP.
SYNC. SEP.
ERROR AMP.
CLAMP
Y/C MIX.
SYNC. MIX.
11 D/A R-Y 5
6 R-Y BF PLS 6
9 D/A B-Y 3
5 B-Y BF PLS 5
R2730 R-Y LEVEL ADJ.
R2723 R-Y BURST LEVEL ADJ.
R2731 B-Y LEVEL ADJ.
R2725 B-Y BURST LEVEL ADJ.
R2728 NTSC BURST LEVEL ADJ.
Q2712 BUFFER
Q2711 BUFFER
Q2713 BURST LEVEL SW.
MOD.
BURST LEVEL
Q2708 BUFFER
FL2702 4.43MHz B.P.F.
FL2703 3.58MHz B.P.F.
Q2709 EFSW
Q2710 EFSW
Q2708 EFSW
Q2702 BUFFER -6dB
Q2703 BUFFER -6dB
Q2704 BUFFER -6dB
IC2702 AGC
IC2705 VIDEO SWITCH
IC2703 VIDEO SWITCH
IC2704 VIDEO SWITCH
75ohm DRIVER
IC2706 SW
Q2716 INV.
SECAM HH PLS.
FREE RUN
Q2705 EFSW
Q2706 EFSW
FL2701 120mS DELAY
FL2706 150mS DELAY
C2719 PAL P-IN-P TINT
C2721 NTSC P-IN-P TINT
Q2707 BUFFER
6 RHD OUT 6
5 RV SYNC. OUT 5
TO DIGITAL BLOCK
1 AUX/TUNER VIDEO 1
9 PB VIDEO 9
7 REC VIDEO 7
Y/C CIRCUIT
3 MONITOR OUT A 3
TO VIDEO OUT (1) RF CONVERTOR
5 MONITOR OUT B 5
TO VIDEO OUT (2)
7 MON SEL A 7
8 MON SEL B 8
3 PIC SEL 3
2 P-IN-P SW 2
4 ENC 525 4
3 ENC SECAM 3
1 C-SYNC. 1
FROM DIGITAL CIRCUIT
Q5703-4 PRE EMPHASIS
C2711
R5709 SECAM CARRIER LEVEL ADJ.
Q5702 BUFFER
Q5701 BUFFER
R5702 R-Y LEVEL ADJ.
R5701 B-Y LEVEL ADJ.
IC5701 SECAM ENCODER
AMP. LIMITER
FM MOD.
Q5706 AMP.
FL5701 4.33MHz B.P.F.
BLANKING
FL5702 BELL FILTER
PULSE SHAPER
MODULATOR CONTROL
3 RV PLS 3
2 SECAM BLK PLS 2
1 SECAM H PLS 1
L.P.F.
FL5703 2.17MHz B.P.F.
IC5702 FM MOD. CTL
SYNC. DEMOD.
÷ 2
MULTI PLEXER
4.25MHz VCO
4.40625MHz VCO
÷ 272
÷ 282
PD

OUT(REC) SYSTEM	ENC 525	ENC PAL	ENC SECAM
PAL	L	H	L
NTSC	H	L	L
MESECAM	L	L	H

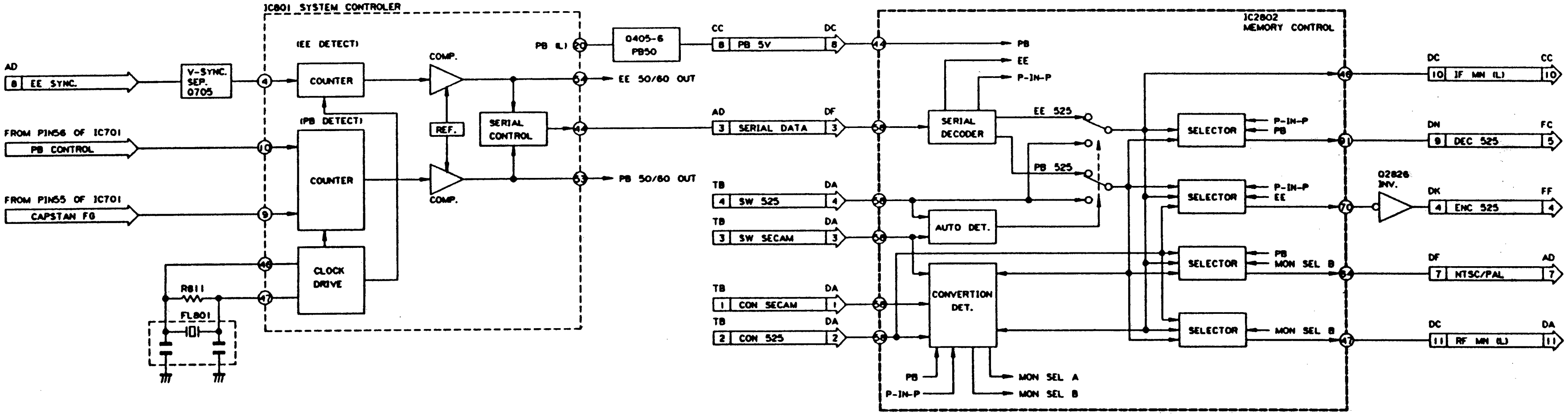
	MON SEL A	MON SEL B
NO CONVERTION	L	L
EE CONVERTION	L	H
PB CONVERTION (P-IN-P)	H	L

DIGITAL DECODER CIRCUIT BLOCK DIAGRAM


TO SYSCON BLOCK
8 EE SYNC. 8
TO DIGITAL BLOCK
9 EE SYNC. 9
IC2702 AGC
SYNC. SEP.
AGC
AMP.
FROM MAIN BLOCK
1 AUX/TUNER VIDEO 1
R2771 AGC LEVEL ADJ.
5V
9 PB VIDEO 9
FROM DIGITAL BLOCK
3 PIC. SEL 3
Q2701 INV.
Q2702 AMP. -6dB
Q2703 AMP. -6dB
IC2701 SWITCH
AUX/TUNER VIDEO
PB VIDEO
+6dB
FL5601 B.P.F.
Q5602-4 LIMITER AMP.
IC5601 SECAM DETECT
LIMITER
GATE
DELAY
1/2 FH AMP.
SECAM DET.
FL5602
1/2 FH TANK
Q5611 INTEG
Q5601 BUFFER
Q2604 BUFFER -6dB
DL2603
VIDEO SIGNAL
NTSC Y/C SEP. COMB FILTER
Y-SIGNAL
C-SIGNAL
CF2602 4.43MHz TRAP
T2606 TRAP
T2607 TRAP
C2673-4 L2606 H.P.F.
Q2612 SWITCH (SECAM-OFF)
Q2613 INV.
Q2602 AMP. +6dB
IC2602 Y-SW.
IC2603 C-SW.
NTSC(L)
PAL/SECAM(H)
PAL(H)
Q2605 BUFFER
Q2606 INV.
Q2607 BUFFER
DL2602 400mS DELAY
Q2608-11 AMP.
1 EE SECAM 1
5 A/D-Y 5
TO DIGITAL BLOCK
6 DEC 525 9
7 DEC SECAM 10
FROM DIGITAL BLOCK
IC2601 MULTI DECODER
R2629 NTSC TINT
X2601 3.58MHz OSC
X2602 4.43MHz OSC
3.58MHz VCXO
4.43MHz VCXO
TINT
NTSC
PAL
APC
NTSC ID DET.
PAL ID DET.
NTSC/PAL CHROMA
ACC
T2601 BELL FILTER
SECAM CHROMA
LIMITER
SECAM ID DET.
SYSTEM LOGIC
T2602 SECAM/ID DET.
DEC 525
Q2614 SW (NTSC-OFF)
Q2615 SW (SECAM-ON)
DEC SECAM
R2635 DL. LEVEL
DL2601 PAL/SECAM 1H DELAY
T2603 DL. PHASE
NTSC/PAL R-Y DEMOD.
NTSC/PAL B-Y DEMOD.
SECAM R-Y DEMOD.
SECAM B-Y DEMOD.
T2605 R-Y DET.
T2604 B-Y DET.
R2640 COLOUR
SYNC. SEP.
V-SYNC. SEP.
AFC
32FH VCO
H C/D
V C/D
Q2621 INV.
Q2622 INV.
Q2616 INV.
Q2617 INV.
Q2620 INV.
Q2619 INV.
Q2618 SW (NTSC-OFF)
Q2601 BUFFER
Q2602 BUFFER
Q2603 SW (NTSC-ON)
R2643
R2649
2 WH SYNC. OUT 5
3 WHD OUT 6
4 WV SYNC. OUT 7
1 A/D R-Y 1
3 A/D B-Y 3
TO DIGITAL BLOCK

INPUT VIDEO	DEC 525	DEC SECAM
PAL	L	L
NTSC	H	L
SECAM	L	H

50/60Hz DETECT SYSTEM BLOCK DIAGRAM


H
G
F
E
D
C
B
A
1
2
3
4
5
6
IC801 SYSTEM CONTROLER
(EE DETECT)
(PB DETECT)
AD
8 EE SYNC.
V-SYNC. SEP. Q705
FROM PIN56 OF IC701
PB CONTROL
FROM PIN55 OF IC701
CAPSTAN FG
4
10
9
46
47
R811
FL801
COUNTER
COUNTER
CLOCK DRIVE
COMP.
REF.
COMP.
SERIAL CONTROL
PB (L)
20
54
44
53
EE 50/60 OUT
PB 50/60 OUT
Q405-6 PB50
CC
8 PB 5V 8
DC
AD
3 SERIAL DATA 3
DF
TB
4 SW 525 4
DA
TB
3 SW SECAM 3
DA
TB
1 CON SECAM 1
DA
TB
2 CON 525 2
DA
IC2802 MEMORY CONTROL
44
56
58
59
55
56
PB
EE
P-IN-P
SERIAL DECODER
EE 525
PB 525
AUTO DET.
CONVERTION DET.
PB
P-IN-P
MON SEL A
MON SEL B
SELECTOR
P-IN-P
PB
SELECTOR
P-IN-P
EE
SELECTOR
PB
MON SEL B
SELECTOR
MON SEL B
46
91
70
64
47
Q2826 INV.
DC
10 IF MN (L) 10
CC
DN
9 DEC 525 5
FC
DK
4 ENC 525 4
FF
DF
7 NTSC/PAL 7
AD
DC
11 RF MN (L) 11
DA

SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:

BE SURE TO USE GENUINE PARTS FOR SECURING THE SAFETY AND RELIABILITY OF THE SET. PARTS MARKED WITH "⚠" AND PARTS SHADED (IN BLACK) ARE ESPECIALLY IMPORTANT FOR MAINTAINING THE SAFETY AND PROTECTING ABILITY OF THE SET. BE SURE TO REPLACE THEM WITH PARTS OF SPECIFIED PART NUMBER.

SAFETY NOTES:

1. *DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.*
2. *SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.*

NOTES:

1. *The unit of resistance "ohm" is omitted(K = 1000 ohm, M = 1 Meg ohm).*
2. *All resistors are 1 / 8 watt, unless otherwise noted.*
3. *The unit of capacitance "F" is omitted (μ = μF, p = μμF).*
4. *The values in parentheses are the ones in the PB mode; the values without parentheses are the ones in the REC mode.*

VOLTAGE MEASUREMENT CONDITIONS:

1. *DC voltages are measured between points indicated and chassis ground by VTVM, with AC100V~240V, 50/60Hz supplied to unit and all controls are set to normal viewing picture unless otherwise noted.*
2. *Voltages are measured with 10000μV B & W or colour signal.*

WAVEFORM MEASUREMENT CONDITIONS:

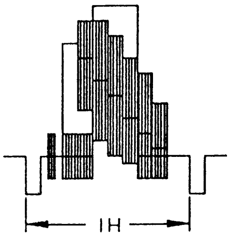
10000μV 87.5 percent modulated colour bar signal is fed into tuner.

CAUTION:

This circuit diagram is original one. Therefore there may be a slight difference from yours.

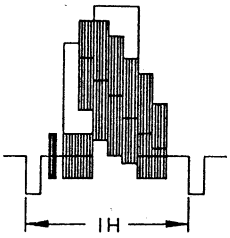
WAVE FORMS

Y/C



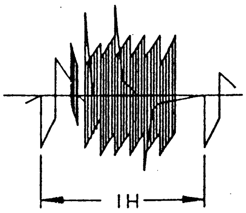
V : 1.0 Vp-p
IC201 PIN5 REC/EE

Y/C



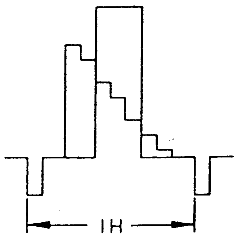
V : 1.0 Vp-p
IC201 PIN9 REC/EE

Y/C



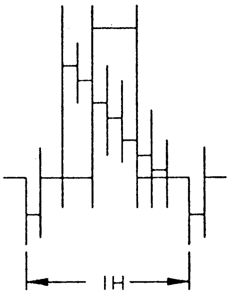
V : 0.5 Vp-p
IC501 PIN17 REC/EE

Y/C



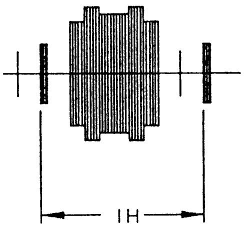
V : 1.0 Vp-p
IC201 PIN21 PB

Y/C



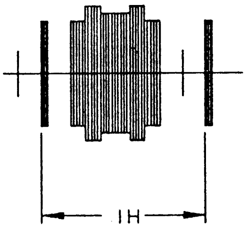
V : 700mVp-p
TP201 REC/EE

Y/C



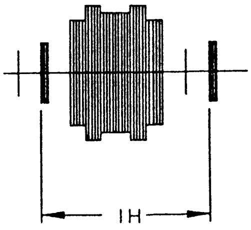
V : 240mVp-p
Q505 EMITTER REC/EE
(PAL)

Y/C



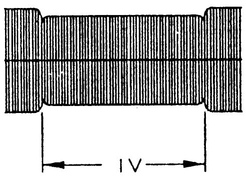
V : 220mVp-p
Q505 EMITTER REC/EE
(NTSC SP/EP)

Y/C



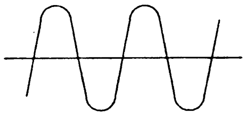
V : 800mVp-p
IC501 PIN12 PB

Y/C



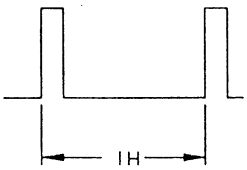
V : 350mVp-p
IC201 PIN28 PB

Y/C



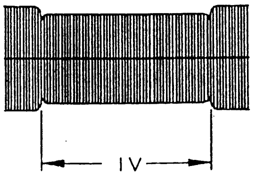
H : 3.579545MHz (NTSC)
H : 4.433619MHz (PAL)
V : 1.2 Vp-p
TP501

Y/C



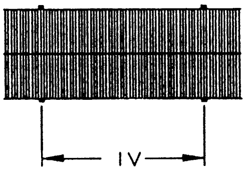
V : 4.8 Vp-p
IC201 PIN
COMPOSITE SYNC.

Y/C



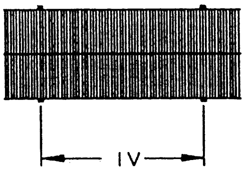
V : 200mVp-p
CE CONNECTOR PIN10
PB

Y/C



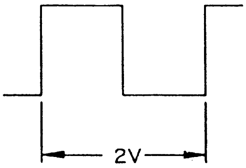
V : 440mVp-p
Q210 EMITTER REC

Y/C



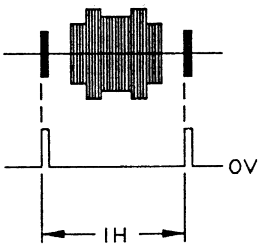
V : 84mVp-p
TP301 REC (PAL LP)

Y/C



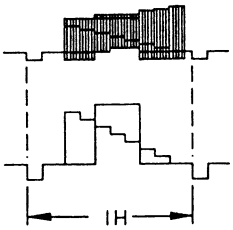
V : 4.8 Vp-p
HEAD SWITCHING PULSE
CE CONNECTOR PIN16
REC/PB

SYSTEM CONVERSION



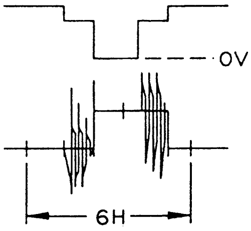
TOP
V : 0.25Vp-p
TP5702 (NTSC C SIG.)
BOTTOM
V : 2.2Vp-p
TP2607

SYSTEM CONVERSION



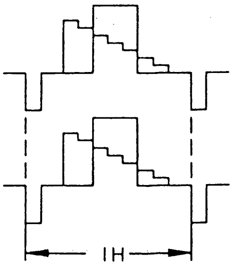
TOP
V : 1.8Vp-p
Q2807 EMITTER
BOTTOM
V : 1.8Vp-p
TP2605

SYSTEM CONVERSION



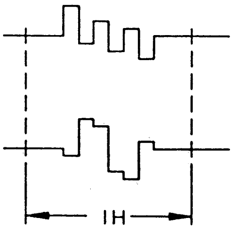
TOP
V : 4.8Vp-p
IC5701 PIN18
BOTTOM
V : 0.6Vp-p
IC5701 PIN15

SYSTEM CONVERSION



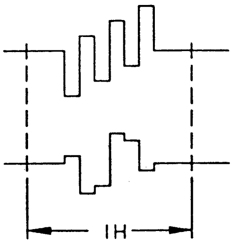
TOP
V : 1.4Vp-p
TP2609 (Y SIG.)
BOTTOM
V : 2.0Vp-p
TP2605 (A/D Y SIG.)

SYSTEM CONVERSION



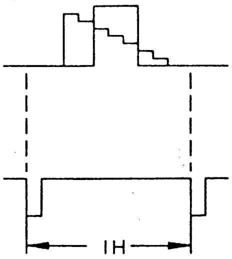
TOP
V : 0.18Vp-p
TP2704 (D/A B-Y)
BOTTOM
V : 0.2Vp-p
TP2705 (D/A R-Y)

SYSTEM CONVERSION



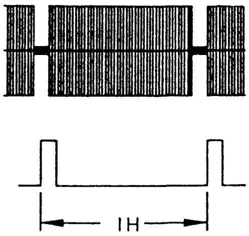
TOP
V : 1.8Vp-p
TP2603 (A/D B-Y)
BOTTOM
V : 1.4Vp-p
TP2604 (A/D R-Y)

SYSTEM CONVERSION



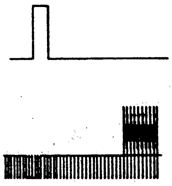
TOP
V : 0.32Vp-p
TP2703
BOTTOM
V : 1.5Vp-p
TP2710

SYSTEM CONVERSION



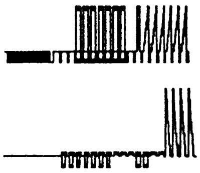
TOP
V : 0.1Vp-p
TP5702
BOTTOM
V : 2.2Vp-p
TP2706

SYSTEM CONVERSION



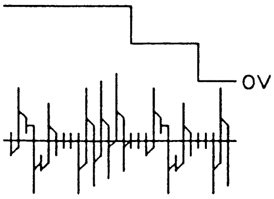
H : 50μsec/dev.
TOP
V : 4.2Vp-p
FC CONNECTOR PIN4
BOTTOM
V : 1.5Vp-p
FB CONNECTOR PIN5
(TP2605)

SYSTEM CONVERSION



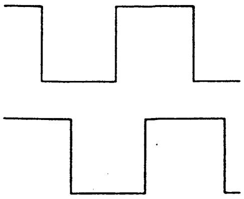
H : 50μsec/dev.
TOP
V : 2.0Vp-p (COPY GARDE)
VIDEO OUTPUT 2
BOTTOM
V : 0.8Vp-p
Q2813 BASE (TP2605)

SYSTEM CONVERSION



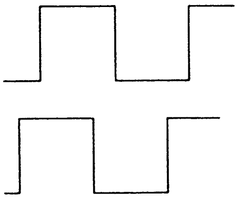
H : 20μsec/dev.
TOP
V : 4.8Vp-p
IC5701 PIN18
BOTTOM
V : 0.9Vp-p
TP5701

SYSTEM CONVERSION



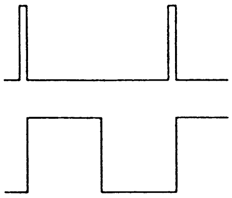
V : 5.0Vp-p H : 5msec/dev.
TOP
DC CONNECTOR PIN4
(V-H.SW.P DUT.)
BOTTOM
DC CONNECTOR PIN5
(V-H.SW.P IN.)
(EP PB N-HEAD MODE)

SYSTEM CONVERSION



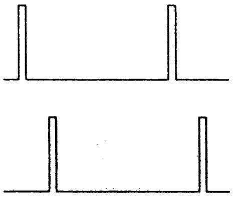
V : 5.0 Vp-p H : 5msec /dev.
TOP
DD CONNECTOR PIN4
(A-H.SW.P. OUT.)
BOTTOM
DD CONNECTOR PIN5
(V-H.SW.P. IN.)
(EP PB MODE)

SYSTEM CONVERSION



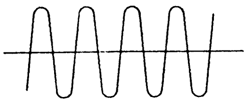
V : 5.0 Vp-p H : 5msec /dev.
TOP
DD CONNECTOR PIN2
(D-PG OUT.)
BOTTOM
DD CONNECTOR PIN5
(V-H.SW.P. IN.)

SYSTEM CONVERSION



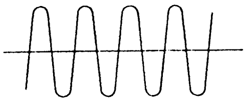
H : 5msec /dev.
TOP
V : 5.0 Vp-p (D-PG OUT.)
DD CONNECTOR PIN2
BOTTOM
V : 6.5 Vp-p (D-PG IN.)
DD CONNECTOR PIN7

AUDIO (NORMAL REC SIGNAL)



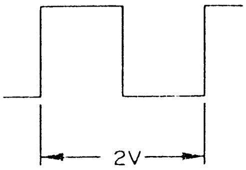
H : 70 5kHz
V : 7.35mVp-p
TP6301 (+), TP6302 (−)
REC

AUDIO (ERASE VOLTAGE)



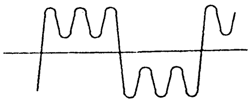
H : 70 5kHz
V : 70 Vp-p
BA CONNECTOR PIN4-5
REC

AUDIO (HEAD SW. PULSE)



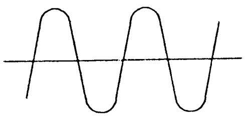
V : 5.0 Vp-p
K6304 PIN30
REC / PB

AUDIO (REC FM SIGNAL)



H : 32μsec (0.2μsec /dev.)
V : 1.5 Vp-p
TP6309, 6310
REC / EE

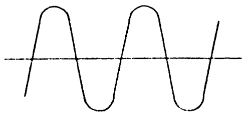
AUDIO (INPUT SIGNAL)



H : 1kHz
V : 420mVp-p

K6302 PIN11 TUN IN (R)
K6302 PIN14 TUN IN (L)
K6302 PIN16 LINE IN (R)
K6303 PIN18 LINE IN (L)
REC / EE

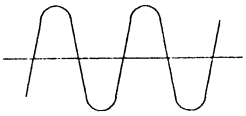
AUDIO (OUTPUT SIGNAL)



H : 1kHz
V : 920mVp-p

K6302 PIN8 LINE OUT (R)
K6303 PIN7 LINE OUT (L)
K6302 PIN9 RF CONV. IN
REC / EE / PB

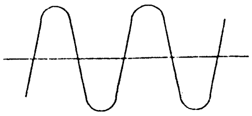
AUDIO (NORMAL PB SIGNAL)



H : 1kHz
V : 290mVp-p

K6302 PIN7 PB

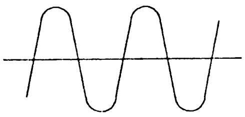
AUDIO (HiFi AUDIO SIGNAL)



H : 1kHz
V : 210mVp-p

IC6303 PIN39 (R)
IC6303 PIN4 (L)
REC / EE / PB

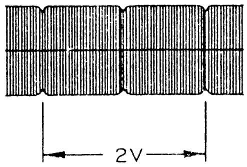
AUDIO (INPUT SIGNAL)



H : 1kHz
V : 260mVp-p

K6302 PIN12 TUNER
MONO INPUT
REC / EE

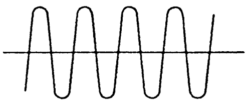
AUDIO (PB FM B.P.F. OUT)



H : 20msec
V : 100mVp-p PB

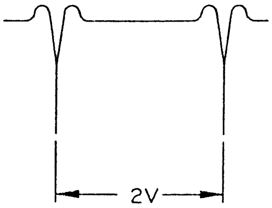
TP6305 SIG. (R-CH)
TP6304 SIG. (L-CH)
TP6306 GND (R-CH)
TP6306 +5V (L-CH)

SERVO



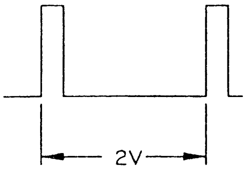
H : 3.58MHz (NTSC)
H : 4.43MHz (PAL)
V : 0.3 Vp-p
IC701 PIN42 REC / PB

SERVO



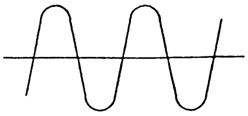
V : 0.4 Vp-p
AN CONNECTOR PIN2
PB

SERVO



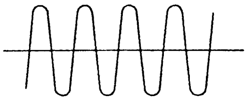
V : 2.0 Vp-p
IC701 PIN7
REC / PB

SERVO



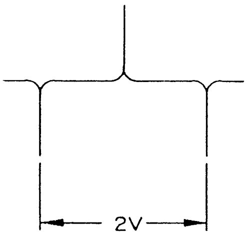
H : 720Hz (NTSC)
H : 600Hz (PAL)
V : 1.9 Vp-p
IC701 PIN17 PB

SERVO



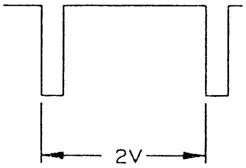
H : 1080Hz (NTSC SP)
H : 757Hz (PAL SP)
V : 1.7 Vp-p
AM CONNECTOR PIN9

SERVO



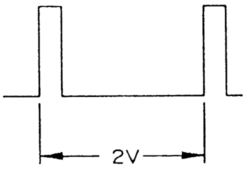
V : 3.2 Vp-p
IC701 PIN36
PB (SP MODE)

SERVO



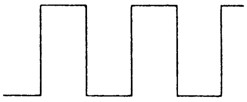
V : 5.0 Vp-p
IC801 PIN4 EE / REC

SERVO



V : 4.8 Vp-p
AN CONNECTOR PIN2

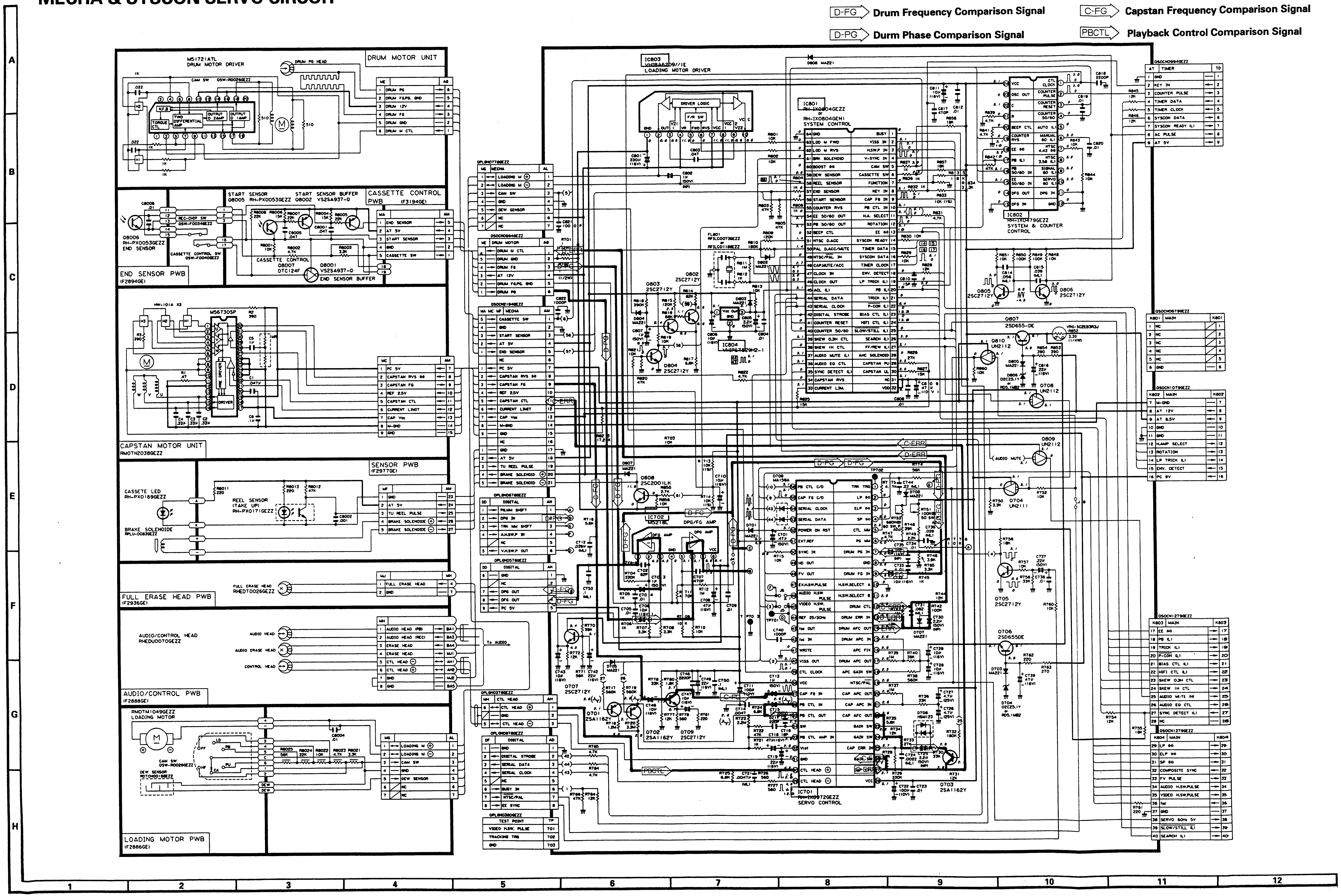
DIGITAL



H : 720Hz
V : 4.8 Vp-p
Q2825 COLLECTOR
NTSC REC / PB

MECHA & SYSCON SERVO CIRCUIT

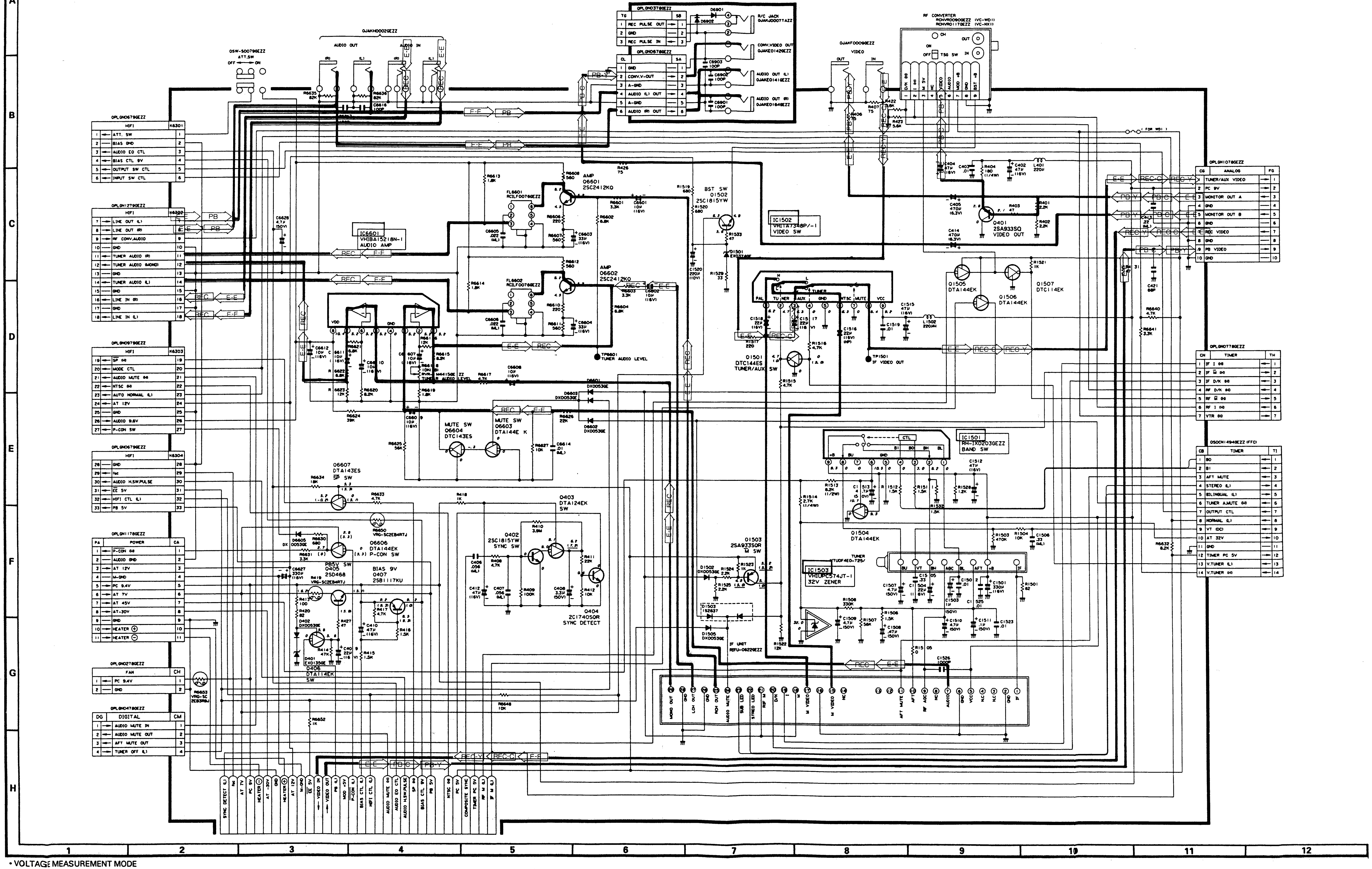
D-ERR	**Drum Error Voltage**
D-FG	**Drum Frequency Comparison Signal**
D-PG	**Durm Phase Comparison Signal**
C-ERR	**Capstan Error Voltage**
C-FG	**Capstan Frequency Comparison Signal**
PBCTL	**Playback Control Comparison Signal**


DRUM MOTOR UNIT
M51721ATL DRUM MOTOR DRIVER
DRUM PG HEAD
CASSETTE CONTROL PWB (F3194GE)
START SENSOR Q8005 RH-PX0053GEZZ
START SENSOR BUFFER Q8002 VS2SA937-O
Q8006 RH-PX0053GEZZ END SENSOR
END SENSOR PWB (F2894GE)
M56730SP
CAPSTAN MOTOR UNIT RMOTN2038GEZZ
SENSOR PWB (F2977GE)
CASSETE LED RH-PX0169GEZZ
REEL SENSOR (TAKE UP) RH-PX0171GEZZ
BRAKE SOLENOIDE RPLU-0083GEZZ
FULL ERASE HEAD PWB (F2936GE)
FULL ERASE HEAD RHEDT0026GEZZ
AUDIO/CONTROL HEAD RHEDU0070GEZZ
AUDIO/CONTROL PWB (F2888GE)
RMOTM1049GEZZ LOADING MOTOR
LOADING MOTOR PWB (F2886GE)
IC803 VHIBA6209//1E LOADING MOTOR DRIVER
IC801 RH-IX0804GEZZ SYSTEM CONTROL
IC802 RH-IX0479GEZZ SYSTEM & COUNTER CONTROL
IC804 VHIPST529H2-1
IC702 M5218L DPG/FG AMP
IC701 RH-IX0872GEZZ SERVO CONTROL
To AUDIO
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H

• VOLTAGE MEASUREMENT MODE
PB......Parentheses( )
REC.....Without Parentheses

MAIN CIRCUIT (1) & JACK TERMINAL CIRCUIT

PB	Audio Playback Signal
REC	Audio Recording Signal
PB-Y	Video Playback Luminance Signal
PB-C	Video Playback Chrominance Signal
REC-Y	Video Recording Luminance Signal
REC-C	Video Recording Chrominance Signal
E-E	E-E Signal


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
IC6601
VHIBA15218N-1
AUDIO AMP
Q6601
2SC2412KQ
Q6602
2SC2412KQ
AMP
MUTE SW
Q6604
DTC143ES
Q6603
DTA144E K
Q6607
DTA143ES
Q6606
DTA144EK
P-CON SW
PB5V SW
Q405
2SD468
BIAS 9V
Q407
2SB1117KU
Q402
2SC1815YW
SYNC SW
Q403
DTA124EK
SW
Q404
2C1740SQR
SYNC DETECT
Q406
DTA114EK
SW
Q1502
2SC1815YW
BST SW
IC1502
VHiTA7348P/-1
VIDEO SW
Q1501
DTC144ES
TUNER/AUX SW
Q1503
2SA933SQR
M SW
IC1503
VHiUPC574JT-1
32V ZENER
Q1504
DTA144EK
IC1501
RH-IX0203GEZZ
BAND SW
Q401
2SA933SQ
VIDEO OUT
Q1505
DTA144EK
Q1506
DTA144EK
Q1507
DTC114EK
TP6601
TUNER AUDIO LEVEL
TP1501
IF VIDEO OUT
RF CONVERTER
TUNER
IF UNIT
HIFI
POWER
FAN
DIGITAL
ANALOG
TIMER
AUDIO OUT
AUDIO IN
VIDEO
OUT
IN
R/C JACK
CONV.VIDEO OUT
AUDIO OUT (L)
AUDIO OUT (R)

• VOLTAGE MEASUREMENT MODE
PB.......Parentheses( )
REC.....Without Parentheses

MAIN CIRCUIT (2)

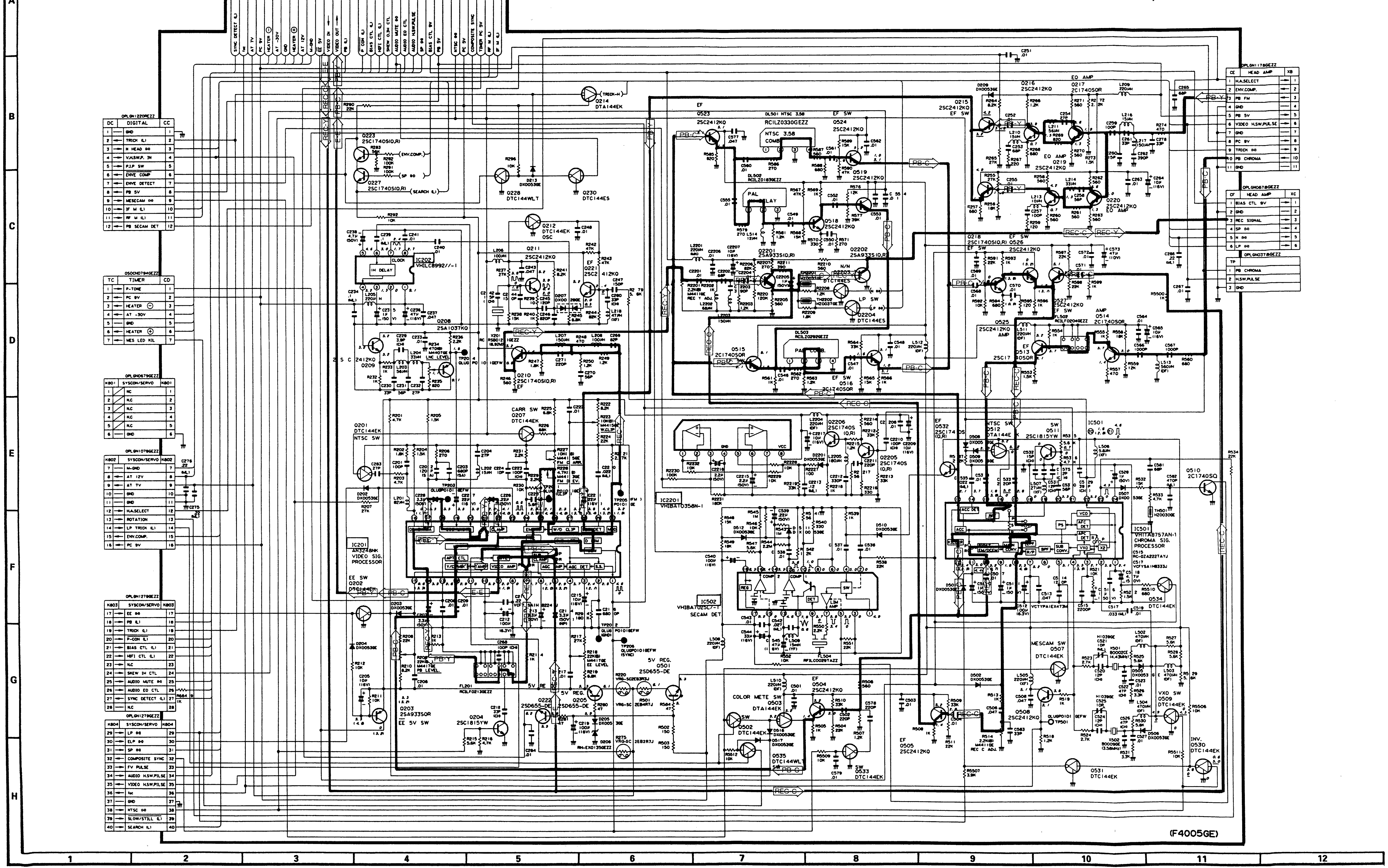
PB-C Playback Chrominance Signal

PB-Y Playback Luminance Signal

REC-C Recording Chrominance Signal

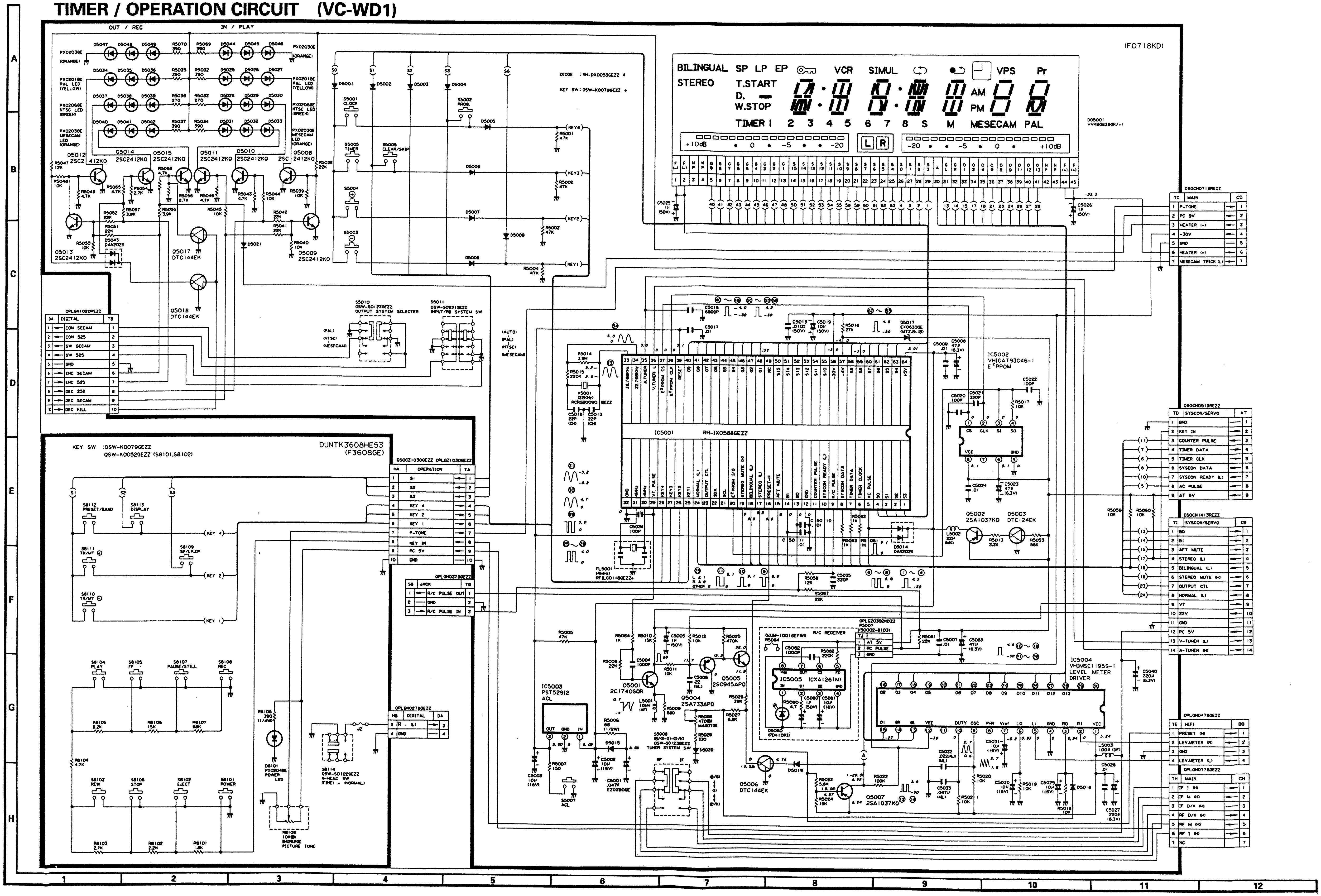
REC-Y Recording Luminance Signal

E-E E-E Signal

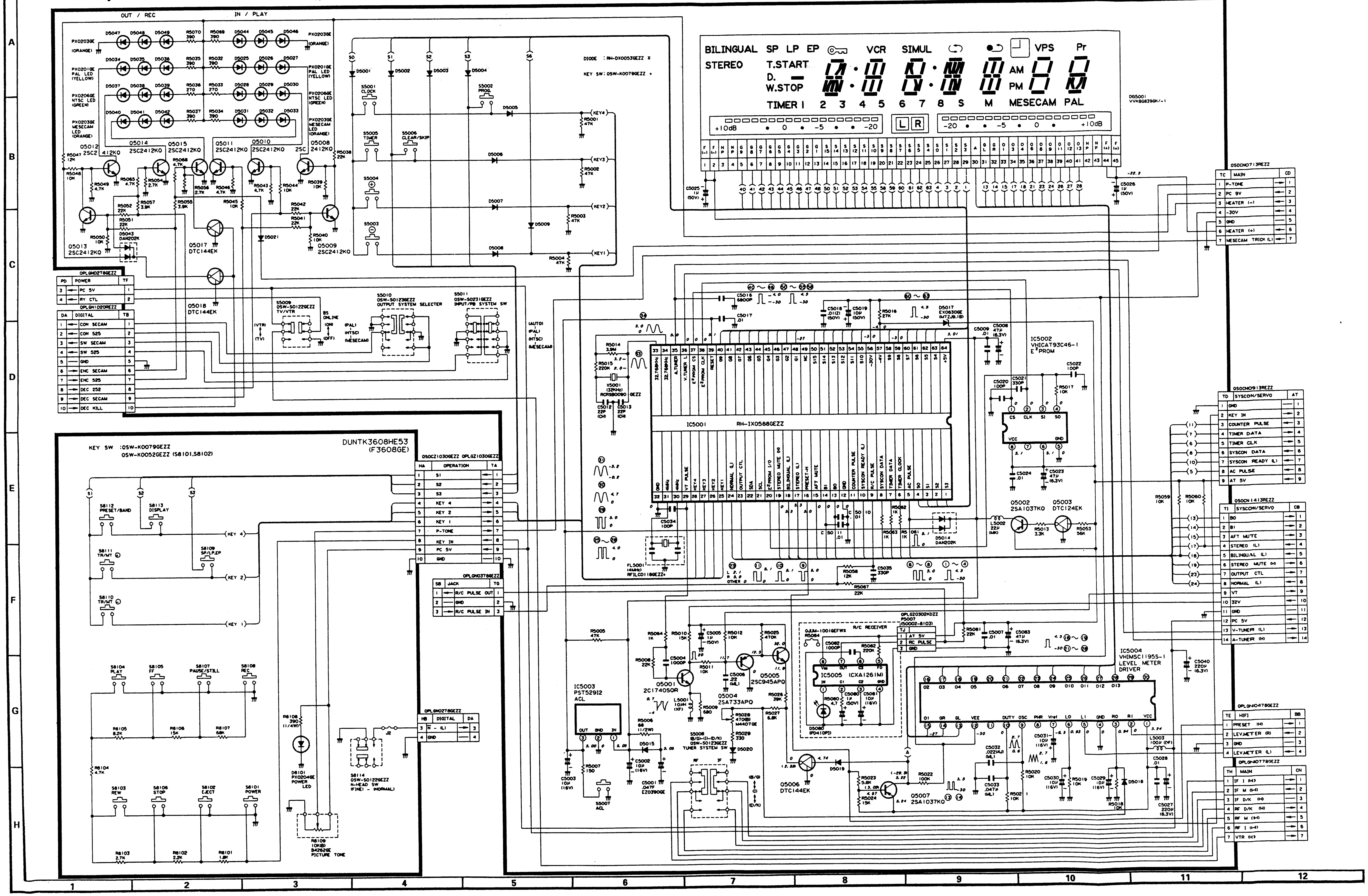

A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
SYNC DETECT (L)
fsc
AT 7V
PC 9V
HEATER ⊖
AT -30V
GND
HEATER ⊕
AT 12V
M-GND
EE 5V
VIDEO IN
VIDEO OUT
PB (L)
P CON (L)
BIAS CTL (L)
HIFI CTL (L)
SKEW 0.5H CTL
AUDIO MUTE (H)
AUDIO EQ CTL
AUDIO H.SW.PULSE
SP (H)
BIAS CTL 9V
PB 5V
NTSC (H)
PC 5V
COMPOSITE SYNC
TIMER PC 5V
RF M (L)
IF M (L)
OPLGN1220REZZ
DC DIGITAL CC
1 GND 1
2 TRICK (L) 2
3 N HEAD (H) 3
4 V.H.SW.P. IN 4
5 P.I.P SW 5
6 ENVE COMP 6
7 ENVE DETECT 7
8 PB 5V 8
9 MESECAM (H) 9
10 IF M (L) 10
11 RF M (L) 11
12 PB SECAM DET 12
050CN0794GEZZ
TC TIMER CD
1 P-TONE 1
2 PC 9V 2
3 HEATER ⊖ 3
4 AT -30V 4
5 GND 5
6 HEATER ⊕ 6
7 MES LED KIL 7
OPLGN0679GEZZ
KB01 SYSCON/SERVO KB01
1 NC 1
2 N.C 2
3 N.C 3
4 N.C 4
5 N.C 5
6 GND 6
OPLGN1079GEZZ
K802 SYSCON/SERVO K802
7 M-GND 7
8 AT 12V 8
9 AT 7V 9
10 GND 10
11 GND 11
12 H.A.SELECT 12
13 ROTATION 13
14 LP TRICK (L) 14
15 ENV.COMP. 15
16 PC 9V 16
C276 .22 (ML)
C275 .22 (ML)
OPLGN1279GEZZ
K803 SYSCON/SERVO K803
17 EE (H) 17
18 PB (L) 18
19 TRICK (L) 19
20 P-CON (L) 20
21 BIAS CTL (L) 21
22 HIFI CTL (L) 22
23 N.C 23
24 SKEW 1H CTL 24
25 AUDIO MUTE (H) 25
26 AUDIO EQ CTL 26
27 SYNC DETECT (L) 27
28 N.C 28
R664 1K
OPLGN1279GEZZ
K804 SYSCON/SERVO K804
29 LP (H) 29
30 ELP (H) 30
31 SP (H) 31
32 COMPOSITE SYNC 32
33 FV PULSE 33
34 AUDIO H.SW.PILSE 34
35 VIDEO H.SW.PILSE 35
36 fsc 36
37 GND 37
38 NTSC (H) 38
39 SLOW/STILL (L) 39
40 SEARCH (L) 40
OPLGN1178GEZZ
CE HEAD AMP XB
1 H.A.SELECT 1
2 ENV.COMP. 2
3 PB FM 3
4 GND 4
5 PB 5V 5
6 VIDEO H.SW.PULSE 6
7 GND 7
8 PC 9V 8
9 TRICK (H) 9
10 PB CHROMA 10
11 GND 11
OPLGN0678GEZZ
CF HEAD AMP XC
1 BIAS CTL 9V 1
2 GND 2
3 REC SIGNAL 3
4 SP (H) 4
5 N (H) 5
6 LP (H) 6
OPLGN0378GEZZ
TP
1 PB CHROMA
2 H.SW.PULSE
3 GND
Q214 DTA144EK
Q223 2SC1740S(Q,R)
Q227 2SC1740S(Q,R)
Q228 DTC144WLT
Q230 DTC144ES
IC202 VHILC8992//-1
1H DELAY
Q212 DTC144EK OSC
Q211 2SC2412KQ
Q221 2SC2412KQ EF
Q208 2SA1037KQ
Q209 2SC2412KQ
Q210 2SC1740S(Q,R) EF
Q207 DTC144EK CARR SW
Q201 DTC144EK NTSC SW
IC201 AN3248NK VIDEO SIG. PROCESSOR
Q202 DTC144EK EE SW
Q203 2SA933SQR EE 5V SW
Q204 2SC1815YW
Q205 2SD655-DE 5V REG.
Q222 2SD655-DE
Q501 2SD655-DE 5V REG.
Q523 2SC2412KQ EF
DL501 NTSC 3.58 RCILZ0330GEZZ
Q524 2SC2412KQ EF SW
Q519 2SC2412KQ
Q518 2SC2412KQ
DL502 RCILZ0183GEZZ PAL DELAY
Q2201 2SA933S(Q,R)
Q2202 2SA933S(Q,R)
Q2203 DTC144ES
Q2204 DTC144ES LP SW
DL503 RCILZ0292GEZZ PAL COMB.
Q515 2C1740SQR
Q516 2SC1740SQR EF SW
Q2206 2SC1740S(Q,R)
Q2205 2SC1740S (Q,R)
IC2201 VHIBA10358N-1
IC502 VHIBA7025L/-1 SECAM DET.
Q504 2SC2412KQ EF
Q503 DTA144EK COLOR METE SW
Q502 DTC144EK
Q535 DTC144WLT SW
Q533 DTC144EK SW
Q215 2SC2412KQ EF SW
Q216 2SC2412KQ
Q217 2C1740SQR EQ AMP
Q219 2SC2412KQ EQ AMP
Q220 2SC2412KQ EQ AMP
Q218 2SC1740S(Q,R) EF SW
Q526 2SC2412KQ
Q527 2SC2412KQ FF SW
Q514 2C1740SQR AMP
Q525 2SC2412KQ AMP
Q513 2SC1740SQR EF
Q532 2SC1740S (Q,R) EF
Q512 DTA144E NTSC SW
Q511 2SC1815YW SW
IC501
Q510 2C1740SQ
IC501 VHITA8757AN-1 CHROMA SIG. PROCESSOR
Q534 DTC144EK
Q507 DTC144EK MESCAM SW
Q508 2SC2412KQ
Q505 2SC2412KQ EF
Q509 DTC144EK VXO SW
Q530 DTC144EK INV.
Q531 DTC144EK
(F4005GE)

• VOLTAGE MEASUREMENT MODE
PB......Parentheses( )
REC.....Without Parentheses

TIMER / OPERATION CIRCUIT (VC-WD1)


OUT / REC
IN / PLAY
(F0718KD)
BILINGUAL SP LP EP VCR SIMUL VPS Pr
STEREO T.START D. W.STOP
AM PM
TIMER I 2 3 4 5 6 7 8 S M MESECAM PAL
+10dB 0 -5 -20 L R -20 -5 0 +10dB
DIODE : RH-DX0053GEZZ
KEY SW : QSW-K0079GEZZ
S5001 CLOCK
S5002 PROG.
S5005 TIMER
S5006 CLEAR/SKIP
S5004
S5003
IC5001 RH-IX0588GEZZ
IC5002 VHICAT93C46-1 E²PROM
IC5003 PST52912 ACL
IC5004 VHIMSC1195S-1 LEVEL METER DRIVER
IC5005 (CXA1261M)
R/C RECEIVER
X5001 (32KHz)
FL5001 (4MHz)
Q5001 2C1740SQR
Q5002 2SA1037KQ
Q5003 DTC124EK
Q5004 2SA733APQ
Q5005 2SC945APQ
Q5006 DTC144EK
Q5007 2SA1037KQ
Q5013 2SC2412KQ
Q5017 DTC144EK
Q5018 DTC144EK
Q5009 2SC2412KQ
DUNTK3608HE53 (F3608GE)
KEY SW : QSW-K0079GEZZ
QSW-K0052GEZZ (S8101,S8102)
S8112 PRESET/BAND
S8113 DISPLAY
S8111 TR/MT
S8109 SP/LP,EP
S8110 TR/MT
S8104 PLAY
S8105 FF
S8107 PAUSE/STILL
S8108 REC
S8103 REW
S8106 STOP
S8102 EJECT
S8101 POWER
D8101 PX0204SE POWER LED
R8109 PICTURE TONE
S8114 QSW-S0122GEZZ N-HEAD SW
S5010 QSW-S0123GEZZ OUTPUT SYSTEM SELECTER
S5011 QSW-S0231GEZZ INPUT/PB SYSTEM SW
S5008 QSW-S0123GEZZ TUNER SYSTEM SW
S5007 ACL
DA DIGITAL TB
CON SECAM
CON 525
SW SECAM
SW 525
GND
ENC SECAM
ENC 525
DEC 252
DEC SECAM
DEC KILL
HA OPERATION TA
SB JACK TG
R/C PULSE OUT
R/C PULSE IN
HB DIGITAL DA
TC MAIN CD
P-TONE
PC 9V
HEATER (-)
-30V
GND
HEATER (+)
MESECAM TRICK (L)
TD SYSCON/SERVO AT
KEY IN
COUNTER PULSE
TIMER DATA
TIMER CLK
SYSCON DATA
SYSCON READY (L)
AC PULSE
AT 5V
TI SYSCON/SERVO CB
AFT MUTE
STEREO (L)
BILINGUAL (L)
STEREO MUTE
OUTPUT CTL
NORMAL (L)
VT
32V
PC 5V
V-TUNER (L)
A-TUNER
TE HIFI BB
PRESET
LEV.METER (R)
LEV.METER (L)
TH MAIN CN
IF 1
IF M
IF D/K
RF D/K
RF M
RF 1
NC
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G H

TIMER / OPERATION CIRCUIT (VC-NX1)


OUT / REC
IN / PLAY
PX0203GE (ORANGE)
PX0201GE PAL LED (YELLOW)
PX0206GE NTSC LED (GREEN)
PX0203GE MESECAM LED (ORANGE)
Q5012 2SC2412KO
Q5014 2SC2412KO
Q5015 2SC2412KO
Q5011 2SC2412KO
Q5010 2SC2412KO
Q5008 2SC2412KO
Q5013 2SC2412KO
Q5017 DTC144EK
Q5018 DTC144EK
Q5009 2SC2412KO
DIODE : RH-DX0053GEZZ
KEY SW : QSW-K0079GEZZ
S5001 CLOCK
S5002 PROG.
S5005 TIMER
S5006 CLEAR/SKIP
S5009 QSW-S0122GEZZ TV/VTR
S5010 QSW-S0123GEZZ OUTPUT SYSTEM SELECTER
S5011 QSW-S0231GEZZ INPUT/PB SYSTEM SW
BILINGUAL SP LP EP VCR SIMUL VPS Pr
STEREO T.START D. W.STOP AM PM
TIMER 1 2 3 4 5 6 7 8 S M MESECAM PAL
+10dB 0 -5 -20
L R
QG5001 VVKBG839GK/-1
IC5001 RH-IX0588GEZZ
IC5002 VHICAT93C46-1 E²PROM
IC5003 PST52912 ACL
IC5004 VHIMSC1195S-1 LEVEL METER DRIVER
IC5005 (CXA1261M)
R/C RECEIVER
Q5001 2C1740SOR
Q5002 2SA1037KO
Q5003 DTC124EK
Q5004 2SA733APO
Q5005 2SC945APO
Q5006 DTC144EK
Q5007 2SA1037KO
X5001 (32KHz) RCRS80090GEZZ
FL5001 (4MHz) RFILC0118GEZZ
S5008 QSW-S0123GEZZ TUNER SYSTEM SW
S5007 ACL
DUNTK3608HE53 (F3608GE)
KEY SW : QSW-K0079GEZZ
QSW-K0052GEZZ (S8101,S8102)
S8112 PRESET/BAND
S8113 DISPLAY
S8111 TR/MT
S8109 SP/LP,EP
S8110 TR/MT
S8104 PLAY
S8105 FF
S8107 PAUSE/STILL
S8108 REC
S8103 REW
S8106 STOP
S8102 EJECT
S8101 POWER
D8101 PX0204GE POWER LED
S8114 QSW-S0122GEZZ N-HEAD SW (FINE) - (NORMAL)
R8109 10K(B) B4262GE PICTURE TONE
QPLGN0278GEZZ
PD POWER TF
PC 5V
RY CTL
QPLGN1020REZZ
DA DIGITAL TB
COM SECAM
COM 525
SW SECAM
SW 525
GND
ENC SECAM
ENC 525
DEC 252
DEC SECAM
DEC KILL
QSOCZ1030GEZZ QPLGZ1030GEZZ
HA OPERATION TA
S1 S2 S3 KEY 4 KEY 2 KEY 1 P-TONE KEY IN PC 5V GND
QPLGN0378GEZZ
SB JACK TG
R/C PULSE OUT
GND
R/C PULSE IN
QPLGN0278GEZZ
HB DIGITAL DA
QSOCN0713REZZ
TC MAIN CD
P-TONE
PC 9V
HEATER (-)
-30V
GND
HEATER (+)
MESECAM TRICK (L)
QSOCN0913REZZ
TD SYSCON/SERVO AT
GND
KEY IN
COUNTER PULSE
TIMER DATA
TIMER CLK
SYSCON DATA
SYSCON READY (L)
AC PULSE
AT 5V
QSOCN1413REZZ
TI SYSCON/SERVO CB
BO
BI
AFT MUTE
STEREO (L)
BILINGUAL (L)
STEREO MUTE (H)
OUTPUT CTL
NORMAL (L)
VT
32V
GND
PC 5V
V-TUNER (L)
A-TUNER (H)
QPLGN0478GEZZ
TE HIFI BB
PRESET (H)
LEVMETER (R)
GND
LEVMETER (L)
QPLGN0778GEZZ
TH MAIN CN
IF I (H)
IF M (H)
IF D/K (H)
RF D/K (H)
RF M (H)
RF I (H)
VTR (H)
A B C D E F G H
1 2 3 4 5 6 7 8 9 10 11 12

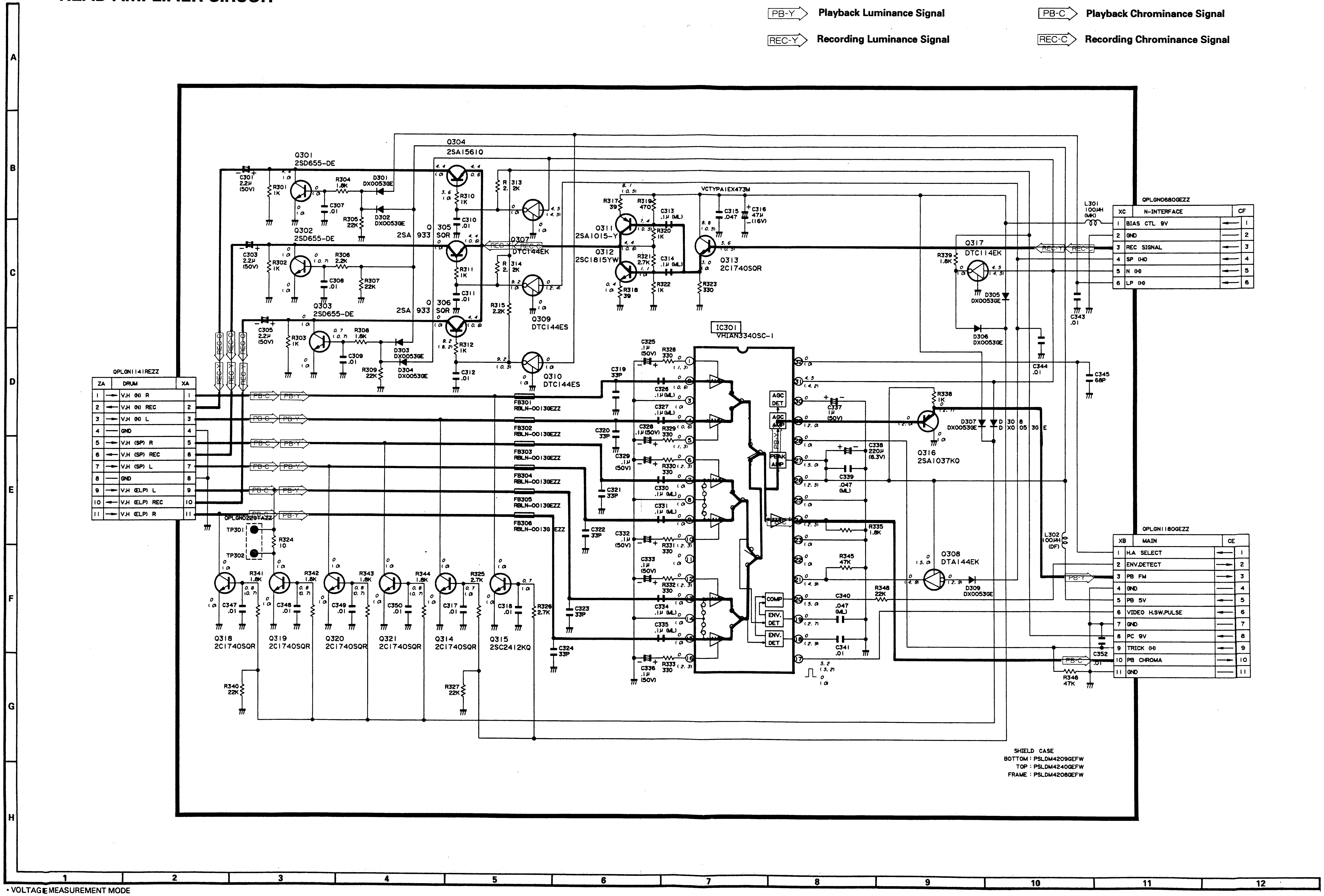
HEAD AMPLIFIER CIRCUIT

PB-Y Playback Luminance Signal

REC-Y Recording Luminance Signal

PB-C Playback Chrominance Signal

REC-C Recording Chrominance Signal


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
Q301 2SD655-DE
Q302 2SD655-DE
Q303 2SD655-DE
Q304 2SA1561O
Q305 2SA933 SOR
Q306 2SA933 SOR
Q307 DTC144EK
Q309 DTC144ES
Q310 DTC144ES
Q311 2SA1015-Y
Q312 2SC1815YW
Q313 2C1740SQR
Q317 DTC114EK
Q316 2SA1037KQ
Q308 DTA144EK
Q318 2C1740SQR
Q319 2C1740SQR
Q320 2C1740SQR
Q321 2C1740SQR
Q314 2C1740SQR
Q315 2SC2412KQ
D301 DX0053GE
D302 DX0053GE
D303 DX0053GE
D304 DX0053GE
D305 DX0053GE
D306 DX0053GE
D307 DX0053GE
D308 DX0053GE
D309 DX0053GE
IC301 VHIAN3340SC-1
VCTYPA1EX473M
L301 100μH (MK)
L302 100μH (DF)
FB301 RBLN-0013GEZZ
FB302 RBLN-0013GEZZ
FB303 RBLN-0013GEZZ
FB304 RBLN-0013GEZZ
FB305 RBLN-0013GEZZ
FB306 RBLN-0013GEZZ
QPLGN1141REZZ
ZA DRUM XA
1 V.H (A) R
2 V.H (A) REC
3 V.H (A) L
4 GND
5 V.H (SP) R
6 V.H (SP) REC
7 V.H (SP) L
8 GND
9 V.H (ELP) L
10 V.H (ELP) REC
11 V.H (ELP) R
QPLGN0680GEZZ
XC N-INTERFACE CF
1 BIAS CTL 9V
2 GND
3 REC SIGNAL
4 SP (H)
5 N (H)
6 LP (H)
QPLGN1180GEZZ
XB MAIN CE
1 H.A SELECT
2 ENV.DETECT
3 PB FM
4 GND
5 PB 5V
6 VIDEO H.SW.PULSE
7 GND
8 PC 9V
9 TRICK (H)
10 PB CHROMA
11 GND
QPLGN0229TAZZ
TP301
TP302
AGC DET
AGC AMP
PEAK AMP
COMP
ENV. DET
SHIELD CASE
BOTTOM : PSLDM4209GEFW
TOP : PSLDM4240GEFW
FRAME : PSLDM4208GEFW

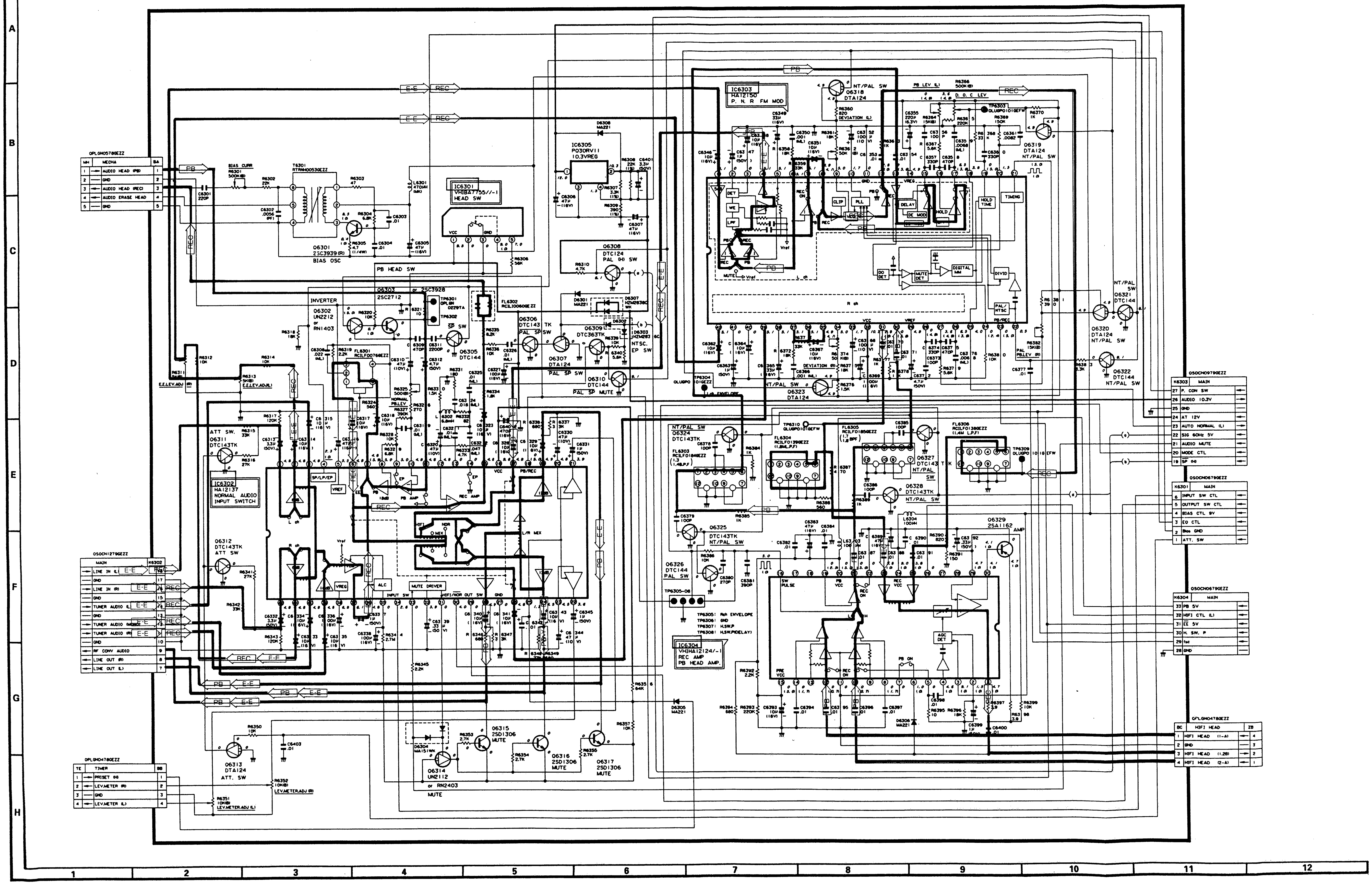
• VOLTAGE MEASUREMENT MODE
PB.......Parentheses( )
REC.....Without Parentheses

Hi-Fi CIRCUIT

PB Playback Signal

REC Recording Signal

E-E E-E Signal


IC6301 VHiBA7755//-1 HEAD SW
IC6302 HA12137 NORMAL AUDIO INPUT SWITCH
IC6303 HA12150 P. N. R FM MOD
IC6304 VHiHA12124/-1 REC AMP PB HEAD AMP
IC6305 PQ30RV11 10.3VREG
Q6301 2SC3939(R) BIAS OSC
A
B
C
D
E
F
G
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12

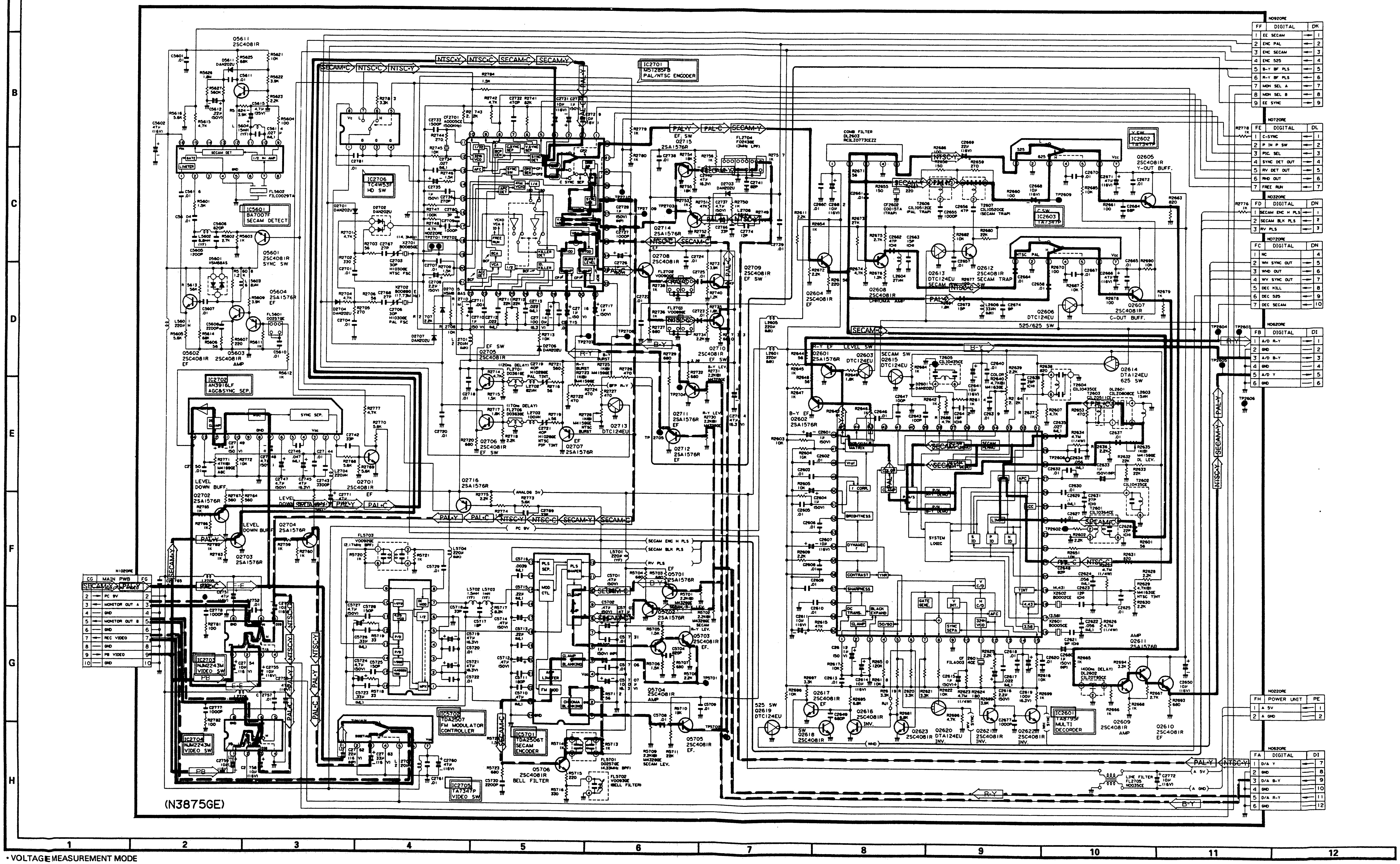
- VOLTAGE MEASUREMENT MODE

PB.......Parentheses( )

REC.....Without Parentheses

ANALOG CIRCUIT

- PAL•Y ——— Convert In Y (PAL)
- SECAM•Y ——— Convert In Y (SECAM)
- NTSC•Y ——— Convert In Y (NTSC)
- PAL•C ——— Convert In C (PAL)
- SECAM•C ——— Convert In C (SECAM)
- NTSC•C ——— Convert In C (NTSC)
- PAL•Y – – – Convert Out Y (PAL)
- SECAM•Y – – – Convert Out Y (SECAM)
- NTSC•Y – – – Convert Out Y (NTSC)
- R-Y ——— Convert In R-Y
- B-Y ——— Convert In B-Y
- PAL•C – – – Convert Out C (PAL)
- SECAM•C – – – Convert Out C (SECAM)
- NTSC•C – – – Convert Out C (NTSC)
- R-Y – – – Convert Out R-Y
- B-Y – – – Convert Out B-Y
- E-E E-E Signal (Non Convert)
- PB Playback Signal (Non Convert)


IC2701 M51285FP PAL/NTSC ENCODER
IC5601 BA7007F SECAM DETECT
IC2706 TC4W53F HD SW
IC2702 AN3916LF AGC&SYNC SEP.
IC2602 TA7347P Y SW
IC2603 TA7347P C SW
IC2601 TA8795F MULTI DECORDER
IC5702 TDA2507 FM MODULATOR CONTROLLER
IC5701 TDA2506T SECAM ENCODER
IC2703 NJM2243M VIDEO SW
IC2704 NJM2243M VIDEO SW
IC2705 TA7347P VIDEO SW
(N3875GE)
A
B
C
D
E
F
G
H
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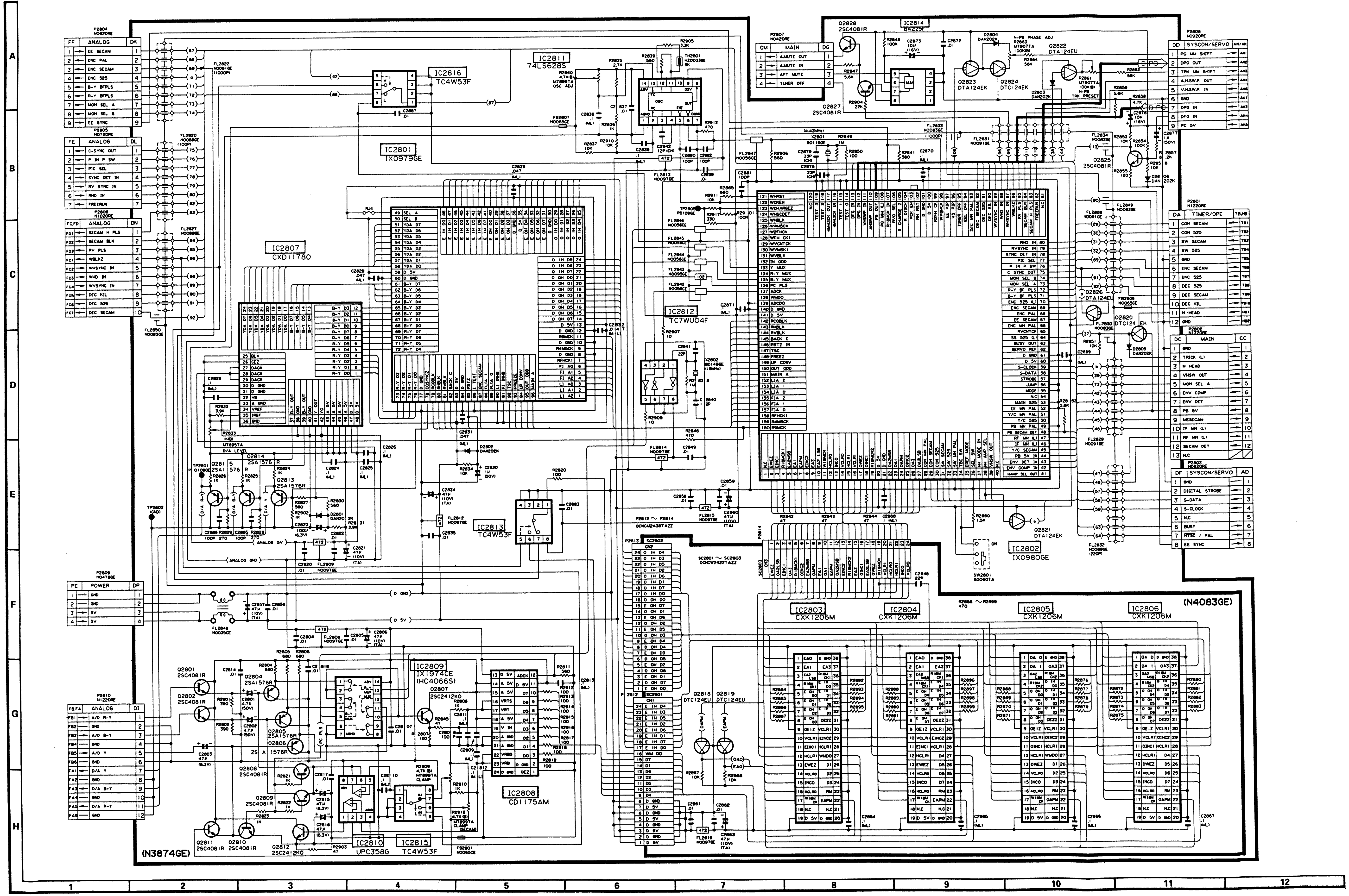
12

• VOLTAGE MEASUREMENT MODE
PB.......Parentheses( )
REC.....Without Parentheses

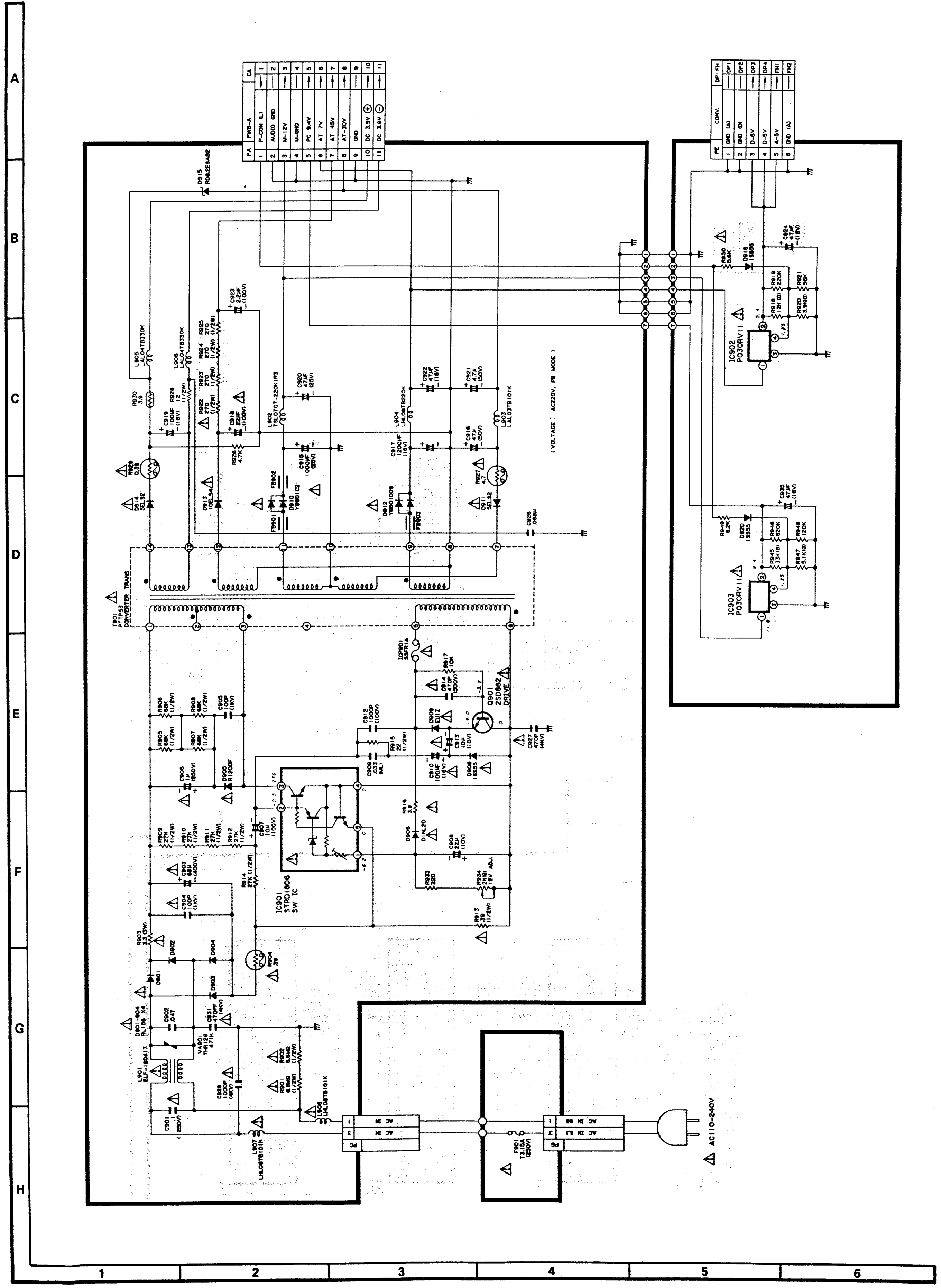
DIGITAL CIRCUIT & DIGITAL SUB CIRCUIT

D-PG **Drum Phase Comparison Signal**

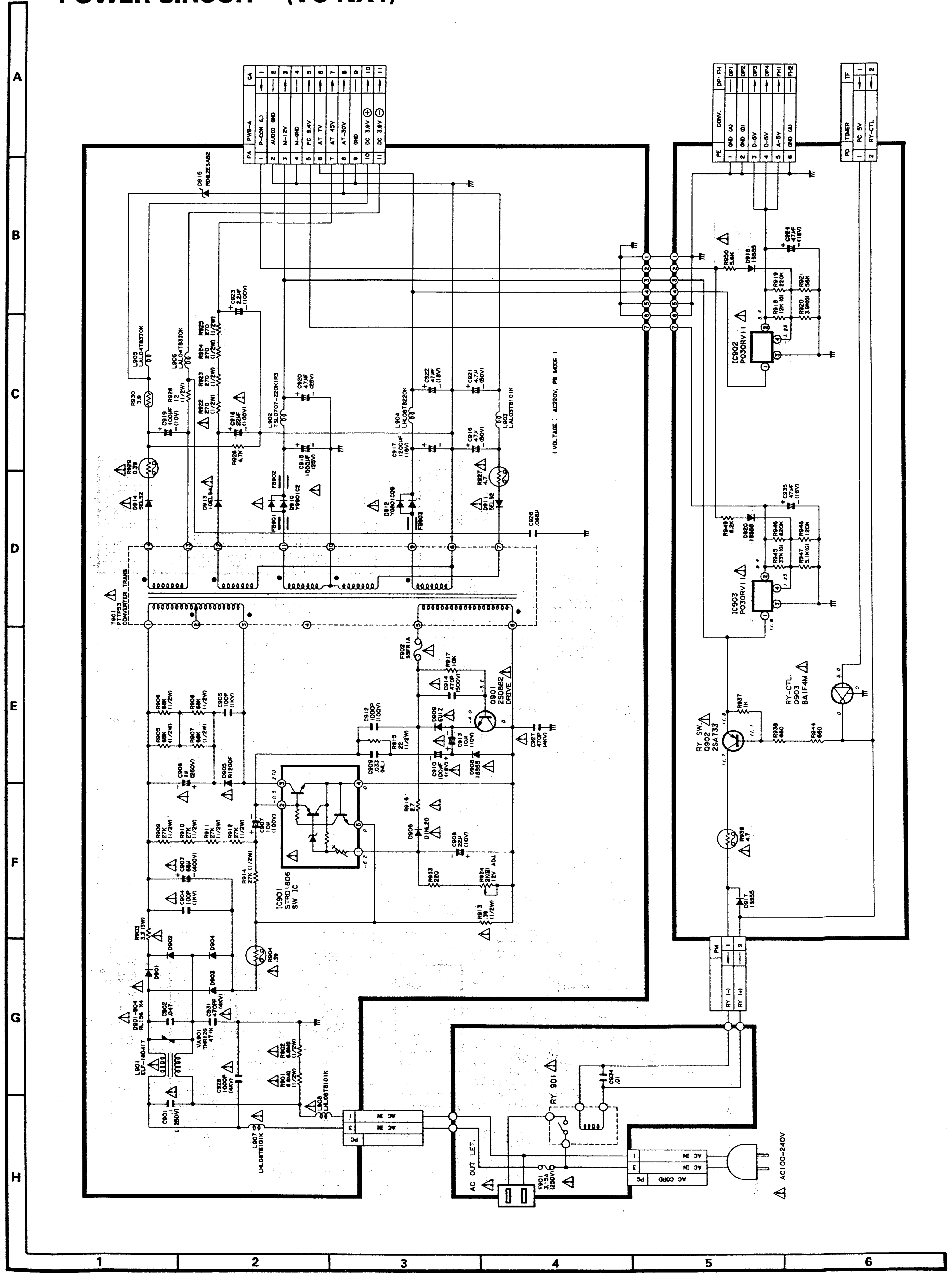

IC2811
74LS628S
IC2816
TC4W53F
IC2801
IX0979GE
IC2807
CXD11780
IC2812
TC7WU04F
IC2813
TC4W53F
IC2814
BA225F
IC2802
IX0980GE
IC2803
CXK1206M
IC2804
CXK1206M
IC2805
CXK1206M
IC2806
CXK1206M
IC2809
IX1974CE
(HC4066S)
IC2808
CD1175AM
IC2810
UPC358G
IC2815
TC4W53F
P2804
N092ORE
ANALOG
P2805
N072ORE
ANALOG
P2806
N102ORE
ANALOG
P2809
N047BGE
POWER
P2810
N122ORE
ANALOG
P2807
N042ORE
MAIN
P2808
N092ORE
SYSCON/SERVO
P2801
N122ORE
TIMER/OPE
P2802
N122ORE
MAIN
P2803
N082ORE
SYSCON/SERVO
SW2801
SOO60TA
(N4083GE)
(N3874GE)
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12

• VOLTAGE MEASUREMENT MODE
PB.......Parentheses( )
REC.....Without Parentheses

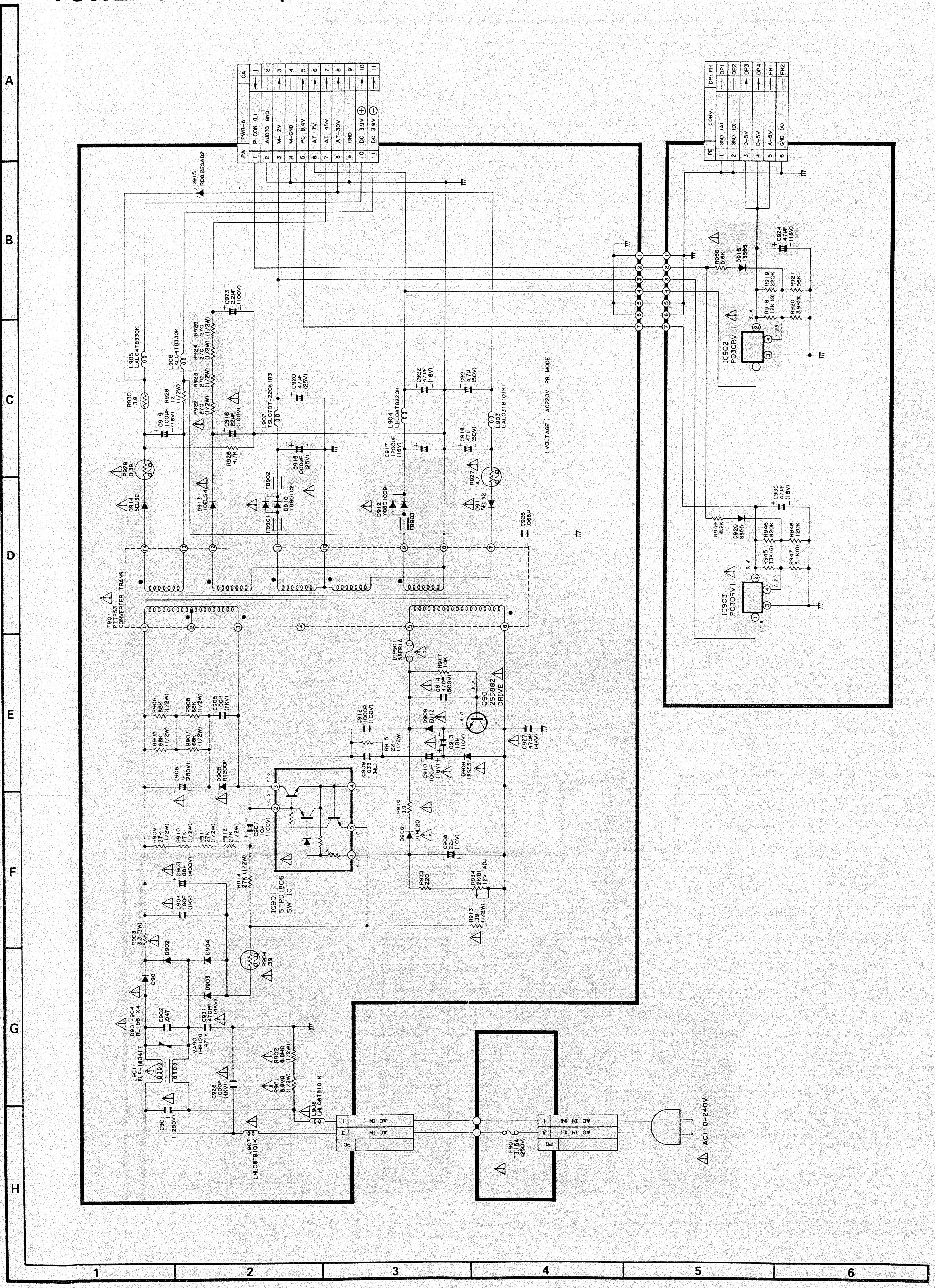
POWER CIRCUIT (VC-WD1)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
IC902 PQ30RV11
IC903 PQ30RV11
T901 CONVERTER TRANS
Q901 2SD882 DRIVE
IC901 STRD1806 SW IC
(VOLTAGE : AC220V, PB MODE)
AC110-240V

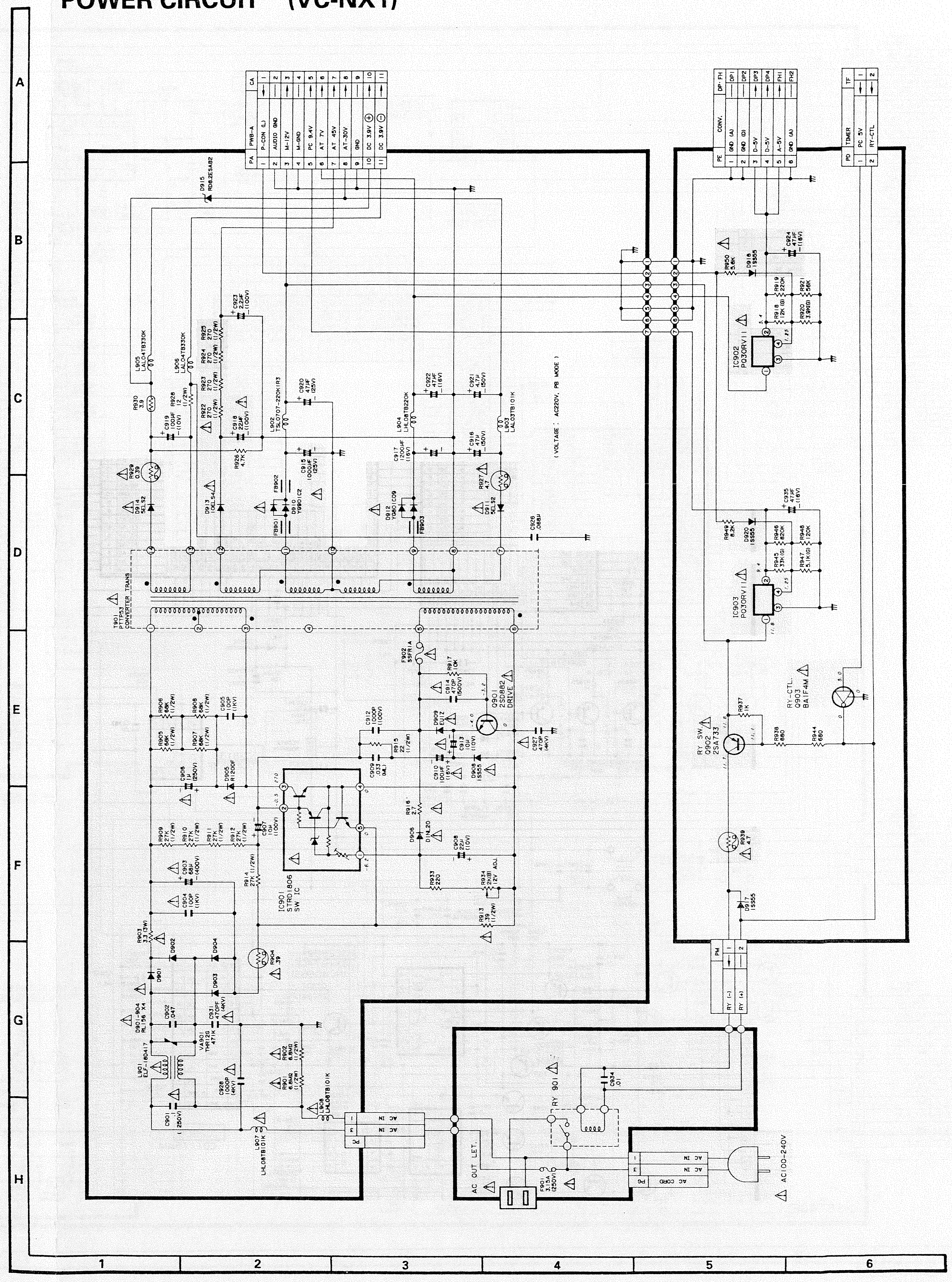
POWER CIRCUIT (VC-NX1)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
IC902 PQ30RV11
IC903 PQ30RV11
T901 CONVERTER TRANS
Q901 2SD882 DRIVE
IC901 STRD1806 SW IC
(VOLTAGE : AC220V, PB MODE)
RY-CTL Q903 BA1F4M
RY SW Q902 2SA733
RY 901
AC OUT LET.
AC100-240V

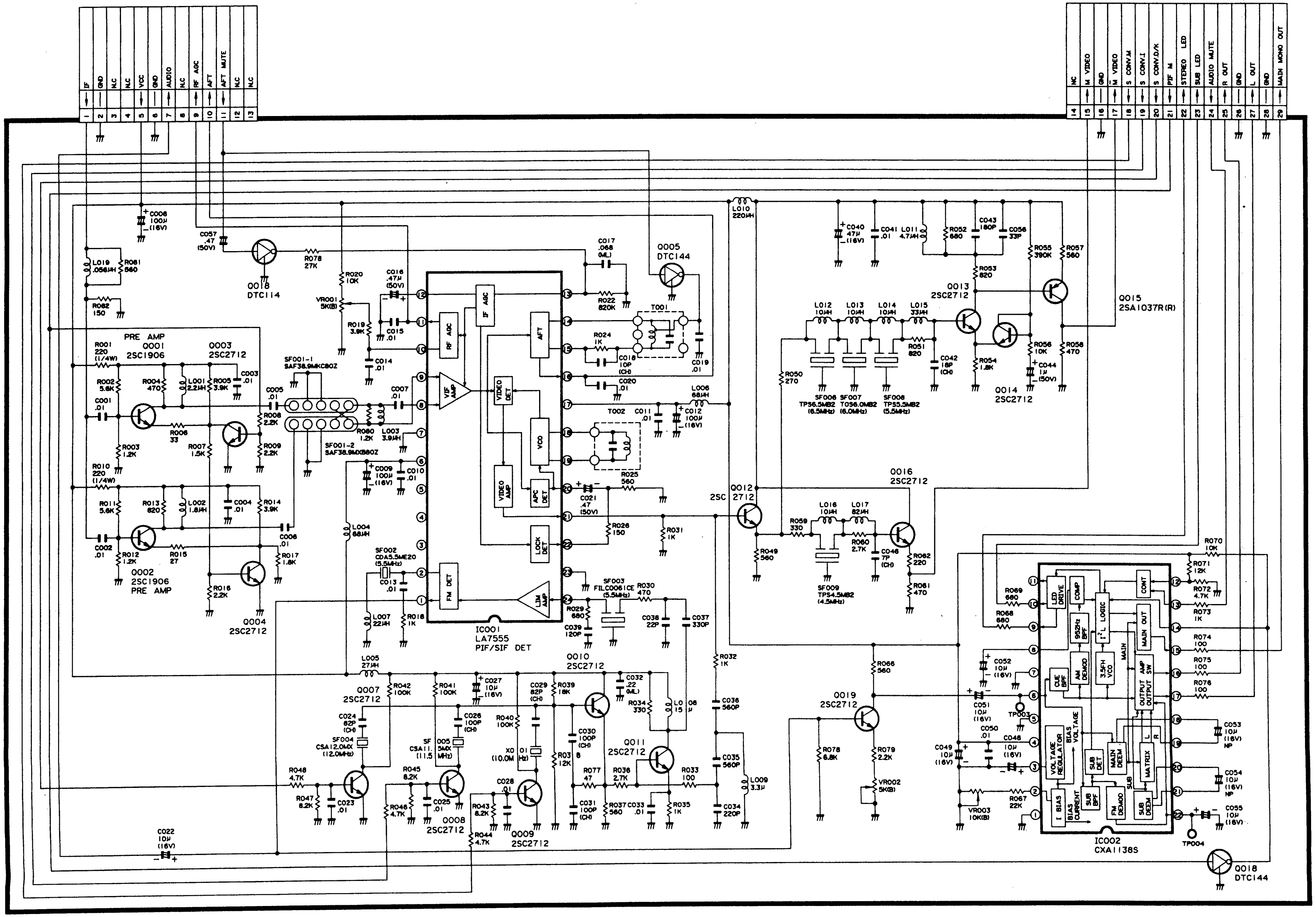
POWER CIRCUIT (VC-WD1)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
AC110-240V
F901 T3.15A (250V)
L901 ELF-18D417
D901-904 RL156 X4
R903 3.3 (3W)
C901 .1 (250V)
C902 .047
VA901 THR12G 471K
C931 470PF (4KV)
C928 1000P (4KV)
L907 LHL08TB101K
L908 LHL08TB101K
R901 6.8MΩ (1/2W)
R902 6.8MΩ (1/2W)
R904 .39
C904 100P (1KV)
C903 68μ (400V)
R909 27K (1/2W)
R910 27K (1/2W)
R911 27K (1/2W)
R912 27K (1/2W)
R914 27K (1/2W)
C906 1μ (250V)
D905 R1200F
R905 68K (1/2W)
R906 68K (1/2W)
R907 68K (1/2W)
R908 68K (1/2W)
C905 100P (1KV)
C907 10μ (100V)
IC901 STRD1806 SW IC
C909 .033 (ML)
C912 1000P (100V)
R915 22 (1/2W)
D906 D1NL20
R916 3.9
R933 220
C908 22μ (10V)
R913 .39 (1/2W)
R934 2K(B) 12V ADJ.
C910 100μF (16V)
C913 10μ (10V)
D908 1SS55
D909 EU1Z
C914 470P (500V)
R917 10K
ICP901 S5FR1A
Q901 2SD882 DRIVE
C927 470P (4KV)
T901 PTTP53 CONVERTER TRANS
D914 5CL52
R929 0.39
R930 3.9
L905 LAL04TB330K
C919 100μF (16V)
R928 12 (1/2W)
L906 LAL04TB330K
D915 RD8.2ESAB2
D913 10EL54
R922 270 (1/2W)
R923 270 (1/2W)
R924 270 (1/2W)
R925 270 (1/2W)
R926 4.7K
C918 22μF (100V)
C923 2.2μF (100V)
FB901
FB902
D910 Y8901C2
L902 TSL0707-220K1R3
C915 1000μF (25V)
C920 47μF (25V)
D912 Y8801C09
FB903
C917 1200μF (16V)
L904 LHL08TB220K
C922 47μF (16V)
D911 5CL52
R927 4.7
C916 47μ (50V)
C921 4.7μ (50V)
L903 LAL03TB101K
C926 .068μ
(VOLTAGE : AC220V, PB MODE)
IC903 PQ30RV11
R949 8.2K
D920 1SS55
R945 33K(G)
R946 820K
R947 5.1K(G)
R948 120K
C935 47μF (16V)
IC902 PQ30RV11
R950 5.6K
D916 1SS55
R918 12K (G)
R919 220K
R920 3.9K(G)
R921 56K
C924 47μF (16V)
PA
PWB-A
CA
1 P-CON (L)
2 AUDIO GND
3 M-12V
4 M-GND
5 PC 9.4V
6 AT 7V
7 AT 45V
8 AT-30V
9 GND
10 DC 3.9V ⊕
11 DC 3.9V ⊖
PE
CONV.
DP·FH
1 GND (A) DP1
2 GND (D) DP2
3 D-5V DP3
4 D-5V DP4
5 A-5V FH1
6 GND (A) FH2

POWER CIRCUIT (VC-NX1)

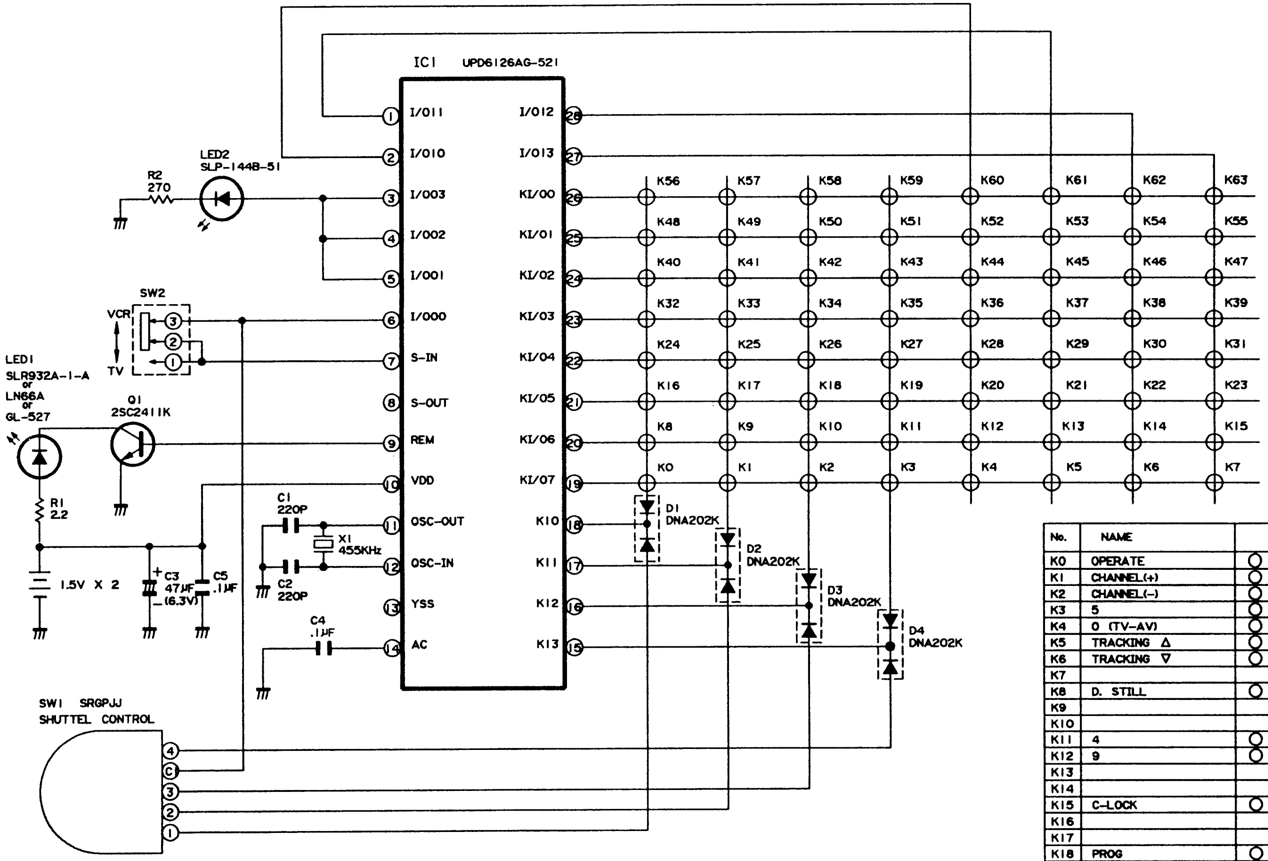

A
B
C
D
E
F
G
H
1
2
3
4
5
6
AC100-240V
AC CORD
AC OUT LET.
F901 3.15A (250V)
RY 901
C934 .01
L901 ELF-18D417
D901-904 RL156 X4
R903 3.3 (3W)
C901 .1 (250V)
C902 .047
VA901 THR12G 471K
C931 470PF (4KV)
C928 1000P (4KV)
L907 LHL08TB101K
L908 LHL08TB101K
R901 6.8MΩ (1/2W)
R902 6.8MΩ (1/2W)
R904 .39
IC901 STRD1806 SW IC
F902 S5FR1A
Q901 2SD882 DRIVE
R916 2.7
T901 PTTP53 CONVERTER TRANS
(VOLTAGE : AC220V, PB MODE)
PM
RY (-)
RY (+)
D917 1SS55
R939 4.7
RY SW Q902 2SA733
R937 1K
R938 680
R944 680
RY-CTL Q903 BA1F4M
IC903 PQ30RV11
IC902 PQ30RV11
PA
PWB-A
CA
1 P-CON (L)
2 AUDIO GND
3 M-12V
4 M-GND
5 PC 9.4V
6 AT 7V
7 AT 45V
8 AT-30V
9 GND
10 DC 3.9V ⊕
11 DC 3.9V ⊖
PE
CONV.
DP·FH
1 GND (A) DP1
2 GND (D) DP2
3 D-5V DP3
4 D-5V DP4
5 A-5V FH1
6 GND (A) FH2
PD
TIMER
TF
1 PC 5V
2 RY-CTL

IF PACK CIRCUIT


IF
GND
N.C
VCC
AUDIO
RF AGC
AFT
AFT MUTE
NC
M VIDEO
S CONV.M
S CONV.I
S CONV.D/K
PIF M
STEREO LED
SUB LED
AUDIO MUTE
R OUT
L OUT
MAIN MONO OUT
PRE AMP
Q001 2SC1906
Q002 2SC1906 PRE AMP
Q003 2SC2712
Q004 2SC2712
Q005 DTC144
Q007 2SC2712
Q008 2SC2712
Q009 2SC2712
Q010 2SC2712
Q011 2SC2712
Q012 2SC2712
Q013 2SC2712
Q014 2SC2712
Q015 2SA1037R(R)
Q016 2SC2712
Q018 DTC114
Q019 2SC2712
Q018 DTC144
SF001-1 SAF38.9MKC80Z
SF001-2 SAF38.9MXB80Z
SF002 CDA5.5ME20 (5.5MHz)
SF003 FILC0061CE (5.5MHz)
SF004 CSA12.0MX (12.0MHz)
SF005 CSA11.5MX (11.5MHz)
X001 (10.0M Hz)
SF006 TPS6.5MB2 (6.5MHz)
SF007 TOS6.0MB2 (6.0MHz)
SF008 TPS5.5MB2 (5.5MHz)
SF009 TPS4.5MB2 (4.5MHz)
T001
T002
VR001 5K(B)
VR002 5K(B)
VR003 10K(B)
IC001 LA7555 PIF/SIF DET
RF AGC
IF AGC
VIF AMP
VIDEO DET
AFT
VCO
VIDEO AMP
APC DET
LOCK DET
FM DET
LIM AMP
IC002 CXA1138S
LED DRIVE
COMP
CONT
I²L LOGIC
952Hz BPF
MAIN OUT
AM DEMOD
3.5fH VCO
MAIN
CUE BPF
AMP SW
OUTPUT OUTPUT
VOLTAGE REGULATOR
BIAS VOLTAGE
SUB DET
MAIN DEEM
MATRIX
L R
I BIAS
BIAS CURRENT
SUB BPF
FM DEMOD
SUB DEEM
TP003
TP004

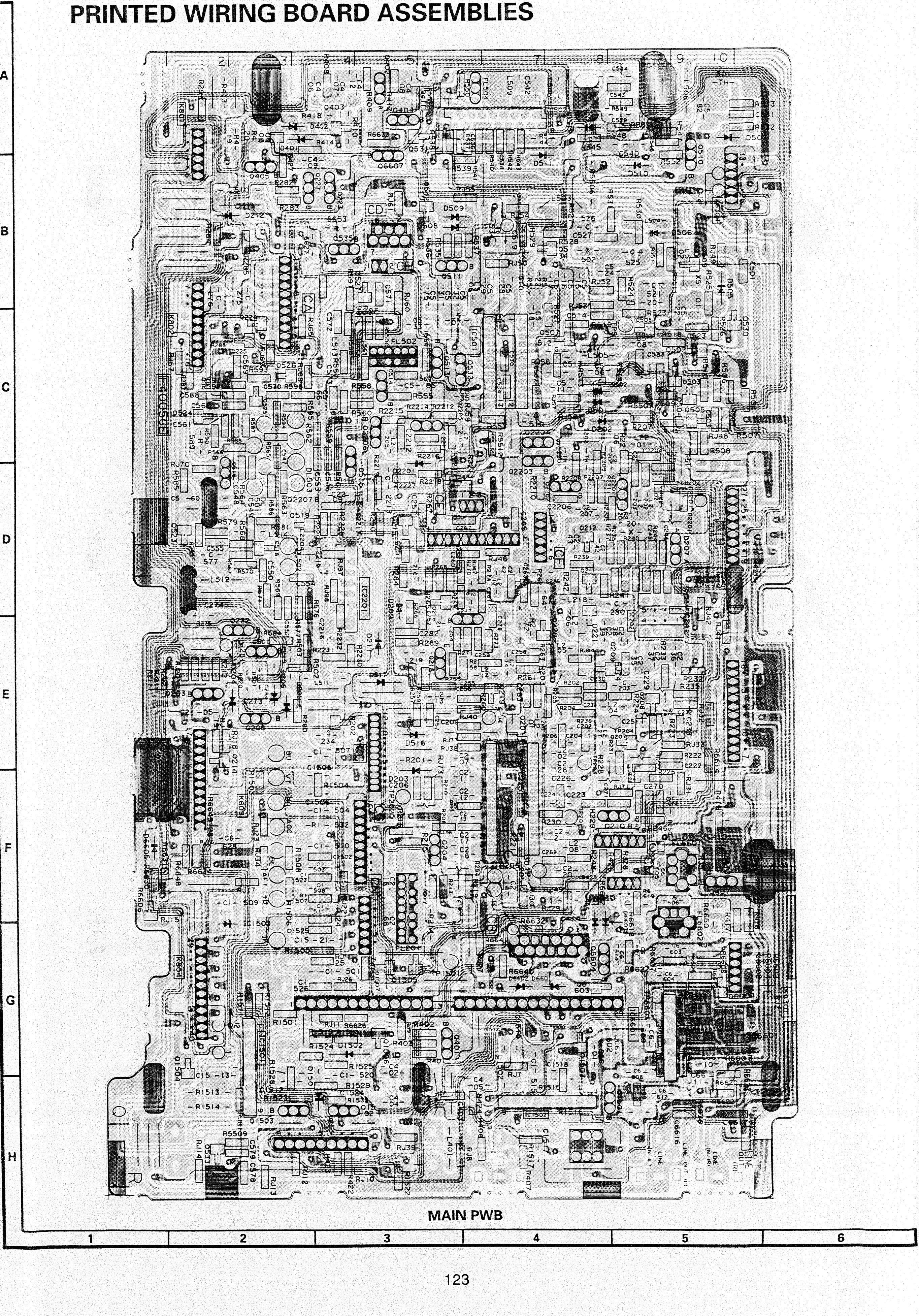
VC-WD1
VC-NX1

INFRARED REMOTE CONTROL CIRCUIT

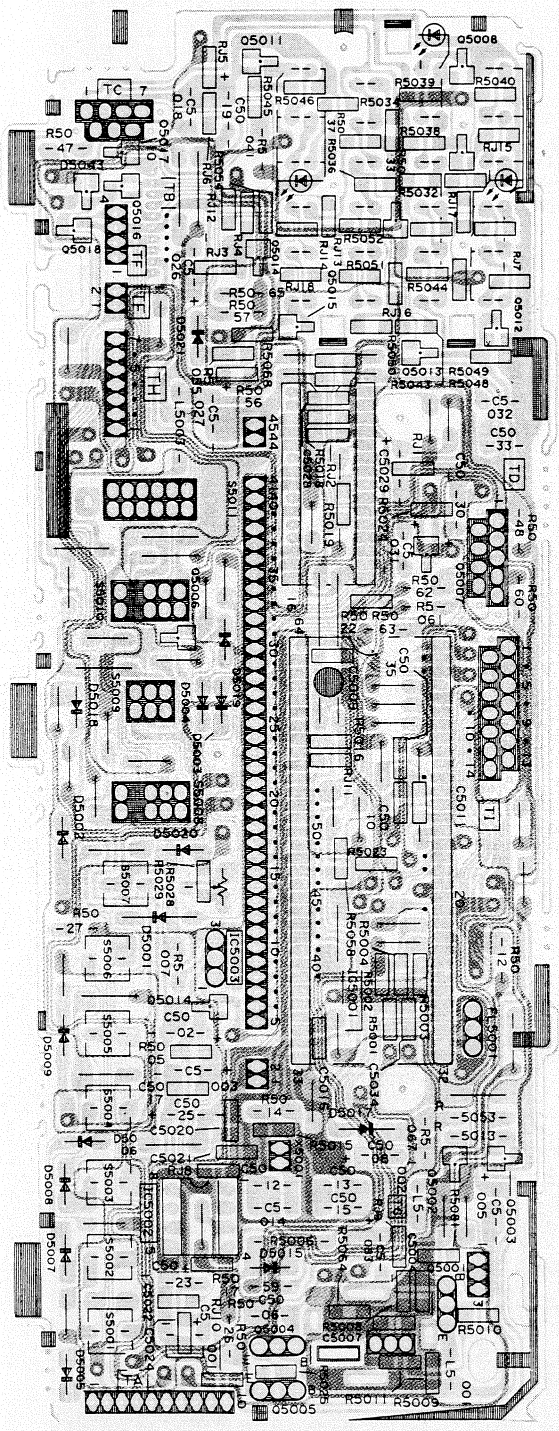

IC1 UPD6126AG-521
I/O11
I/O10
I/O03
I/O02
I/O01
I/O00
S-IN
S-OUT
REM
VDD
OSC-OUT
OSC-IN
YSS
AC
I/O12
I/O13
KI/00
KI/01
KI/02
KI/03
KI/04
KI/05
KI/06
KI/07
KI0
KI1
KI2
KI3
LED2
SLP-1448-51
R2
270
SW2
VCR
TV
LED1
SLR932A-1-A
or
LN66A
or
GL-527
Q1
2SC2411K
R1
2.2
1.5V X 2
C3
47μF
(6.3V)
C5
.1μF
C1
220P
X1
455KHz
C2
220P
C4
.1μF
D1
DNA202K
D2
DNA202K
D3
DNA202K
D4
DNA202K
SW1 SRGPJJ
SHUTTEL CONTROL
K0 K1 K2 K3 K4 K5 K6 K7
K8 K9 K10 K11 K12 K13 K14 K15
K16 K17 K18 K19 K20 K21 K22 K23
K24 K25 K26 K27 K28 K29 K30 K31
K32 K33 K34 K35 K36 K37 K38 K39
K40 K41 K42 K43 K44 K45 K46 K47
K48 K49 K50 K51 K52 K53 K54 K55
K56 K57 K58 K59 K60 K61 K62 K63

No.	NAME		No.	NAME	
K0	OPERATE	○	K32	SHIFT	○
K1	CHANNEL(+)	○	K33	EJECT △	○
K2	CHANNEL(–)	○	K34	TIMER ON/OFF	○
K3	5	○	K35	1	○
K4	0 (TV-AV)	○	K36	6	○
K5	TRACKING △	○	K37	⊡ ●	○
K6	TRACKING ▽	○	K38	DPSS >	○
K7			K39	2 PICTURE	○
K8	D. STILL	○	K40		
K9			K41	CLEAR	○
K10			K42	CLOCK	○
K11	4	○	K43		
K12	9	○	K44	SP/LP.EP	○
K13			K45		
K14			K46	DPSS <	○
K15	C-LOCK	○	K47	SHUTTLE ON/OFF	○
K16			K48	M. STROB	○
K17			K49	DISPLAY	○
K18	PROG	○	K50		
K19	3	○	K51		
K20	8	○	K52	TIME	○
K21	AUDIO OUT		K53	REW ◁◁	○
K22	STOP □	○	K54		
K23	REPEAT	○	K55		
K24			K56		
K25	MEMORY	○	K57		
K26			K58		
K27	2	○	K59		
K28	7	○	K60	REC ●	○
K29	-/--	○	K61	PAUSE/STILL	○
K30	PLAY ▷	○	K62	F.ADV II▷	○
K31	FF ▷▷	○	K63		

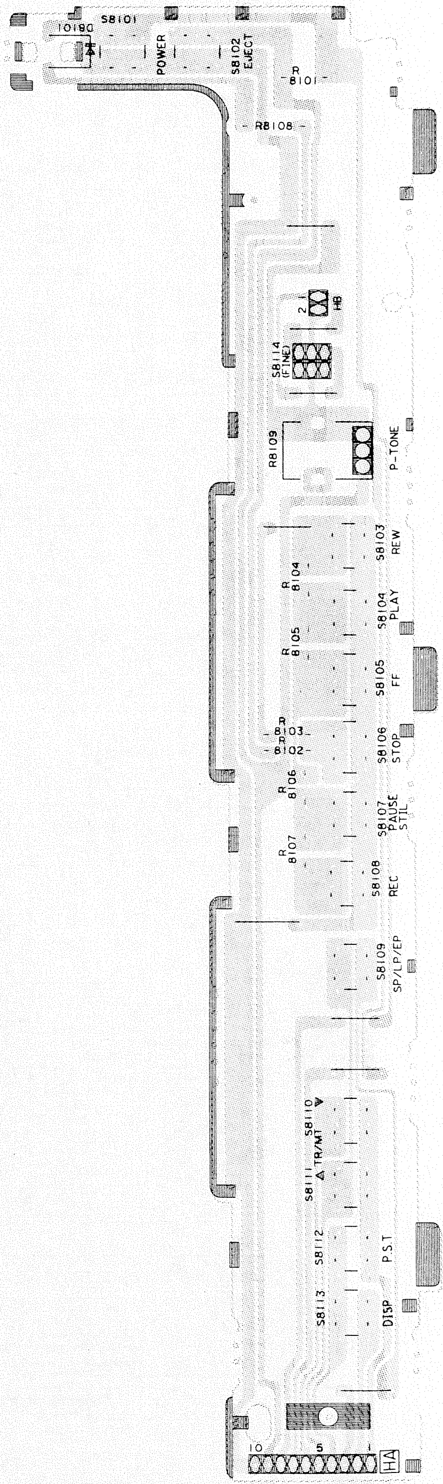
PRINTED WIRING BOARD ASSEMBLIES


A
B
C
D
E
F
G
H
1
2
3
4
5
6

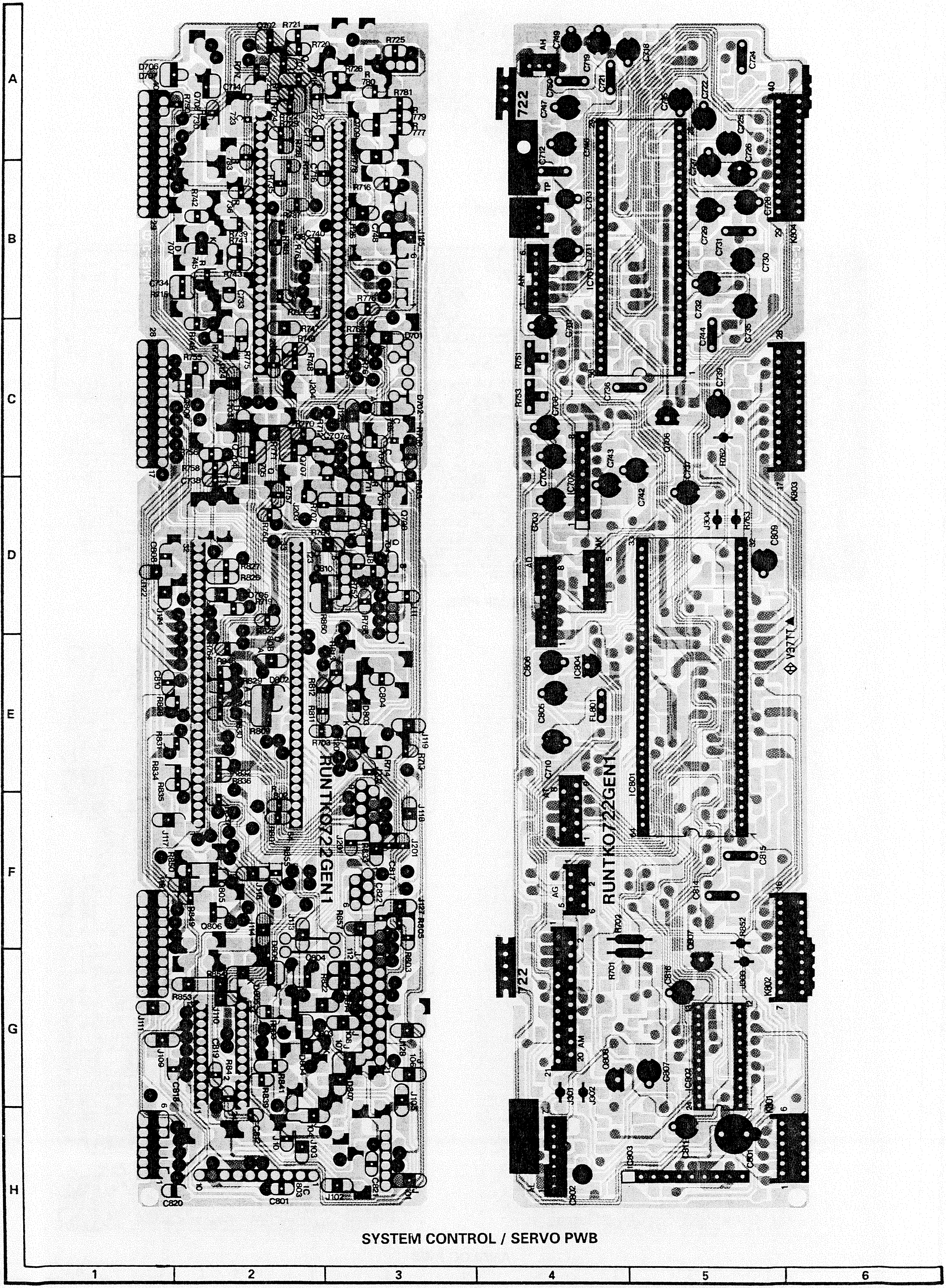
MAIN PWB


A
B
C
D
E
F
G
H
1
2
3

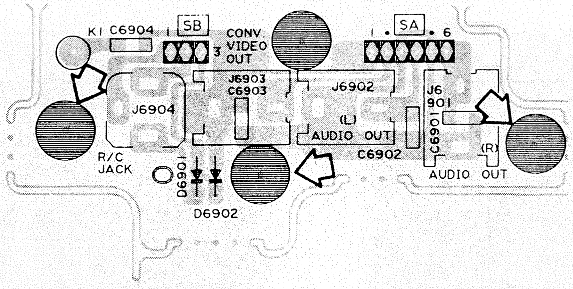
TIMER PWB


S8101
POWER
S8102
EJECT
R8101
R8108
S8114 (FINE)
HB
R8109
P-TONE
S8103 REW
S8104 PLAY
S8105 FF
S8106 STOP
S8107 PAUSE STIL
S8108 REC
S8109 SP/LP/EP
S8110 ▽
S8111 TR/MT △
S8112 P.S.T
S8113 DISP
HA
4
5
6

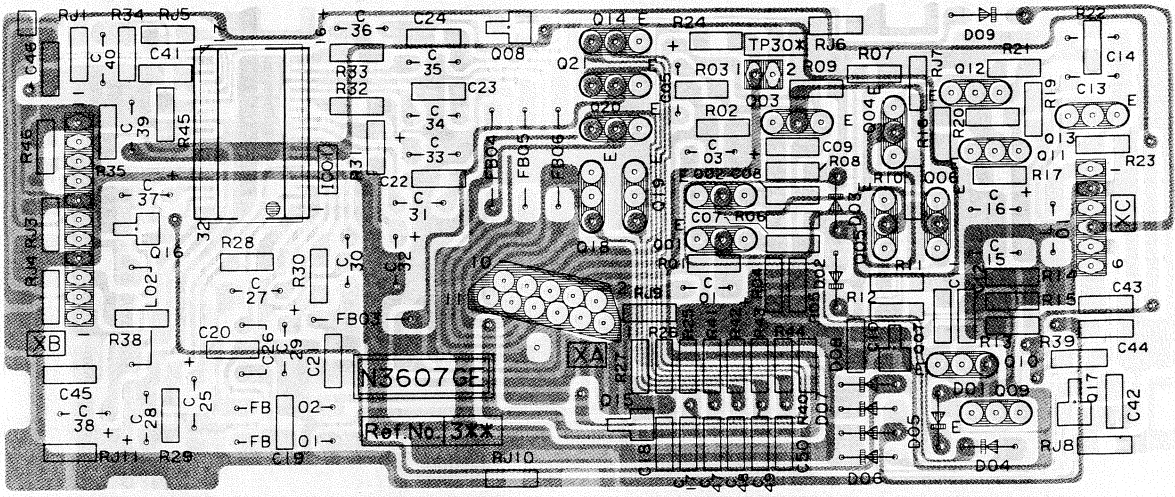
OPERATION PWB


A
B
C
D
E
F
G
H
1
2
3
4
5
6
RUNTK0722GEN1
RUNTK0722GEN1
IC701
IC702
IC801
IC802
IC804
722
722
K801
K802
K803
K804
V327L1
FL801
J201
J301
J302
J304
C724
C730
C735
C809
C815
R701
R702
R751
R753
R762
R763
R852
C820
C801
J102

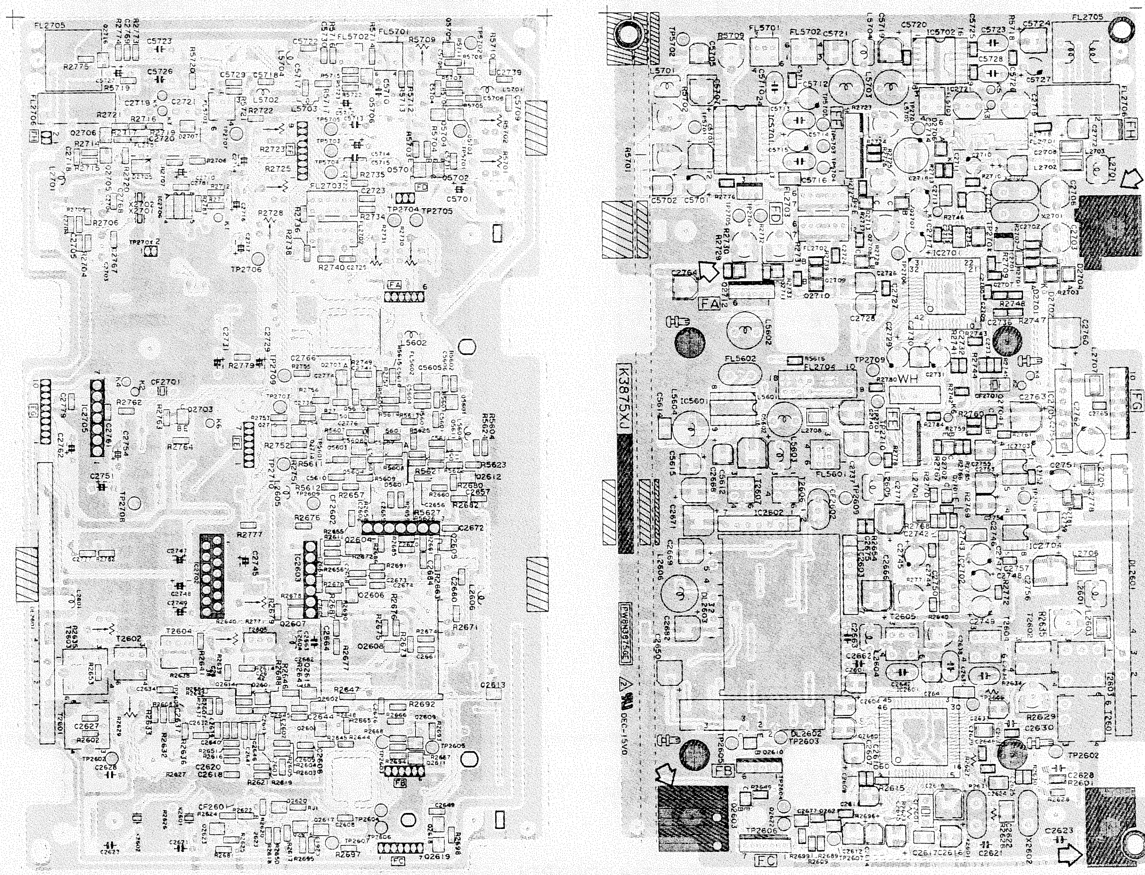
SYSTEM CONTROL / SERVO PWB


K1
C6904
SB
3
CONV.
VIDEO
OUT
SA
1
6
J6903
C6903
J6902
J6904
J6
901
(L)
AUDIO OUT
C6901
(R)
R/C
JACK
D6901
C6902
AUDIO OUT
D6902

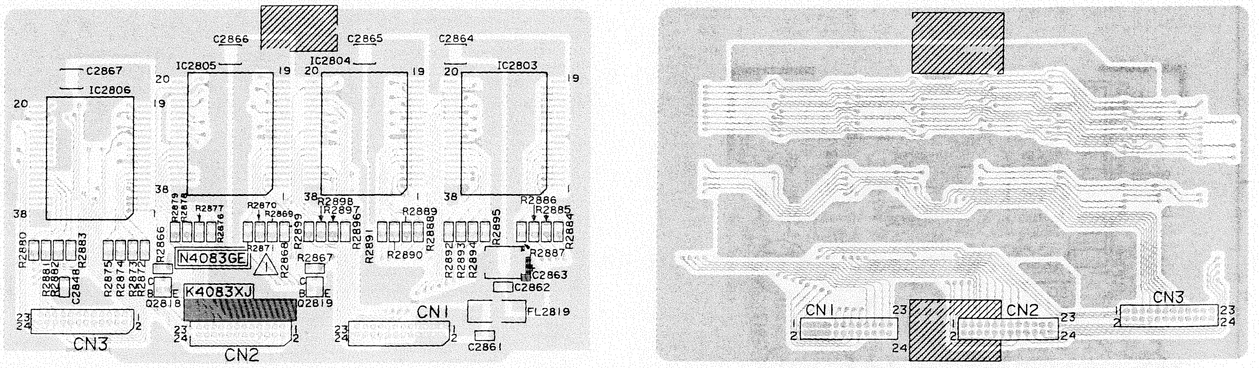
JACK PWB


N3607GE
Ref.No.3XX
XA
XB
XC
TP30X

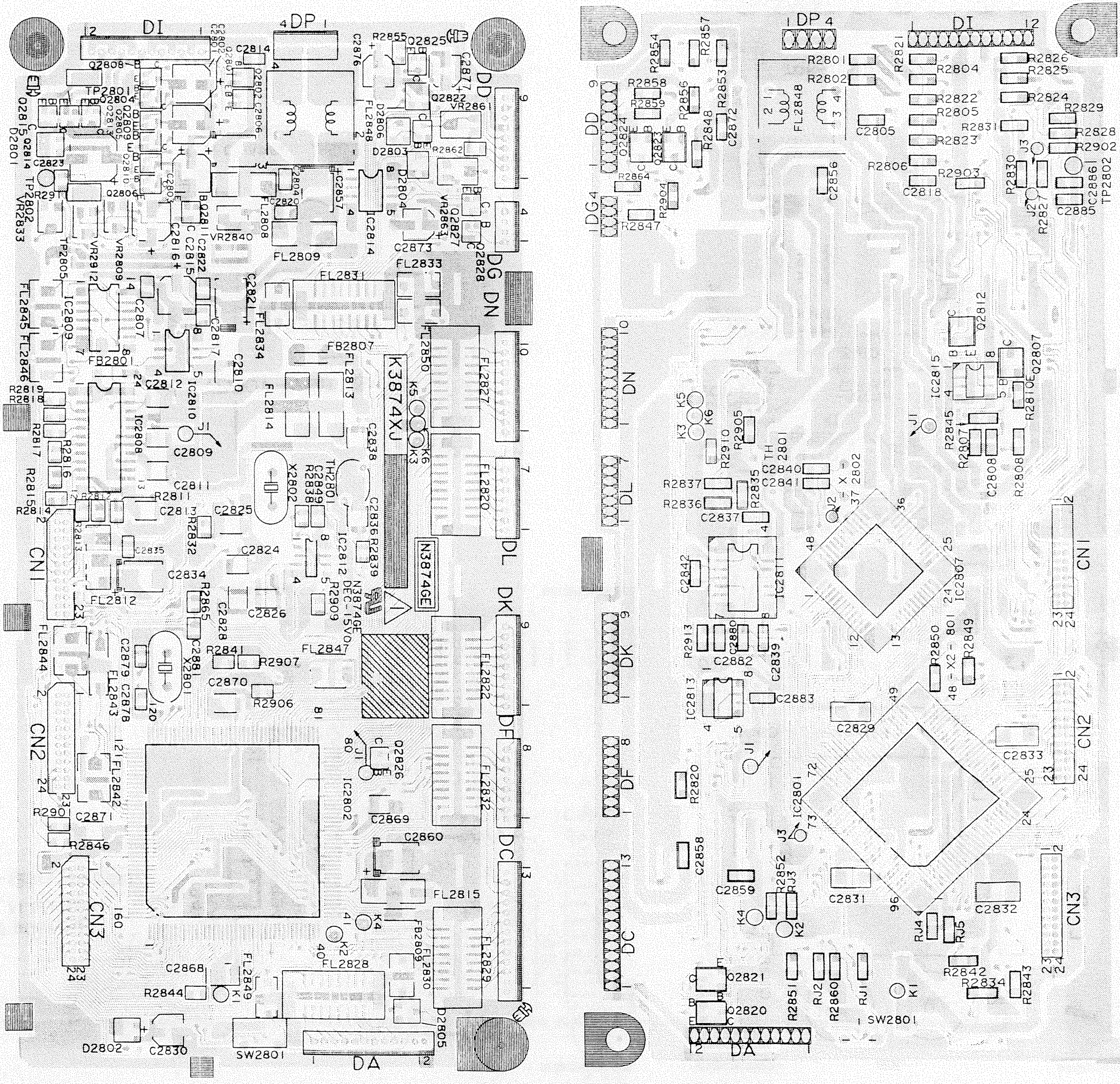
HEAD AMP PWB



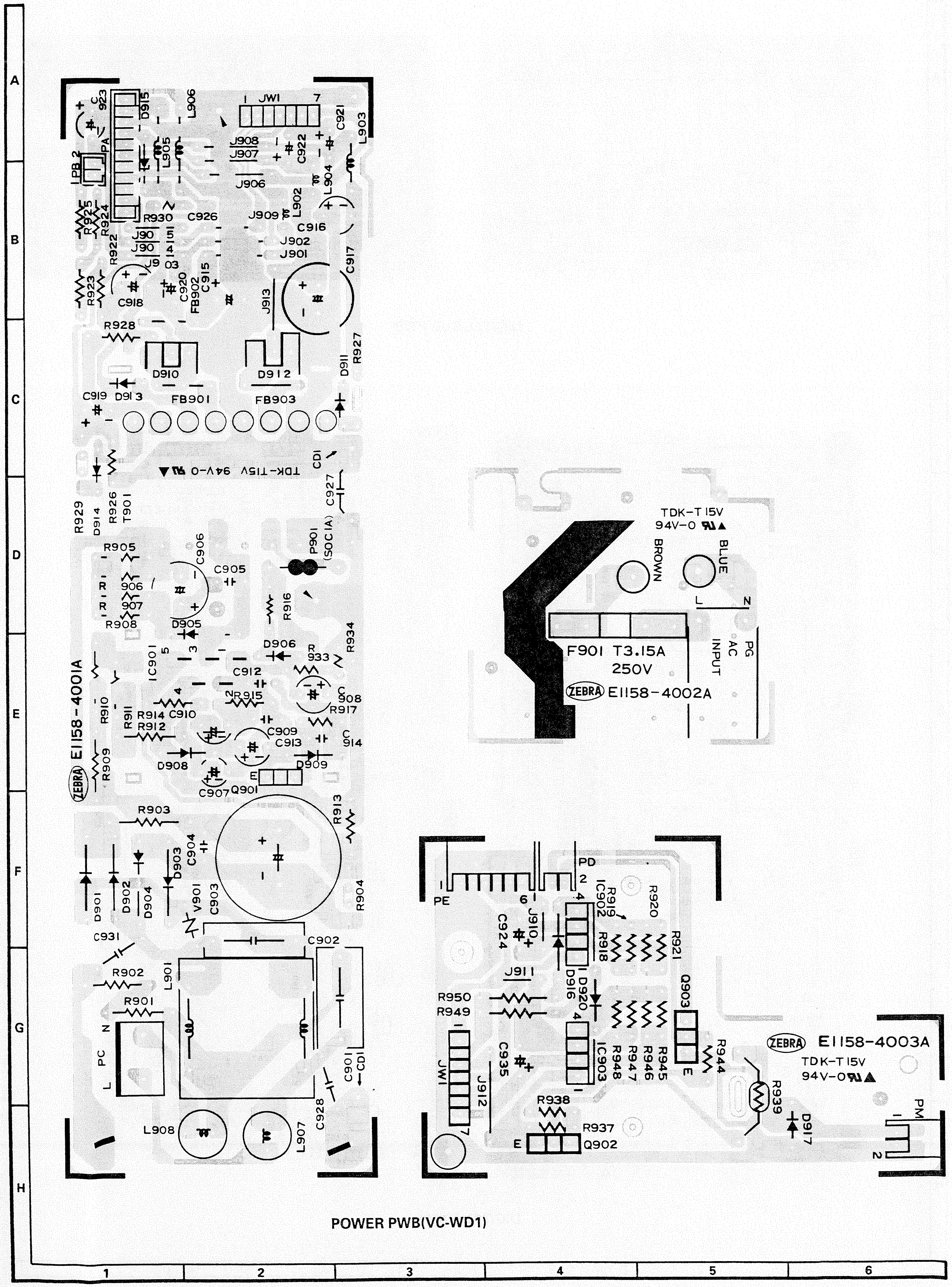
ANALOG PWB


IC2806
IC2805
IC2804
IC2803
C2867
C2866
C2865
C2864
N4083GE
K4083XJ
Q2818
Q2819
C2862
C2863
FL2819
C2861
CN1
CN2
CN3

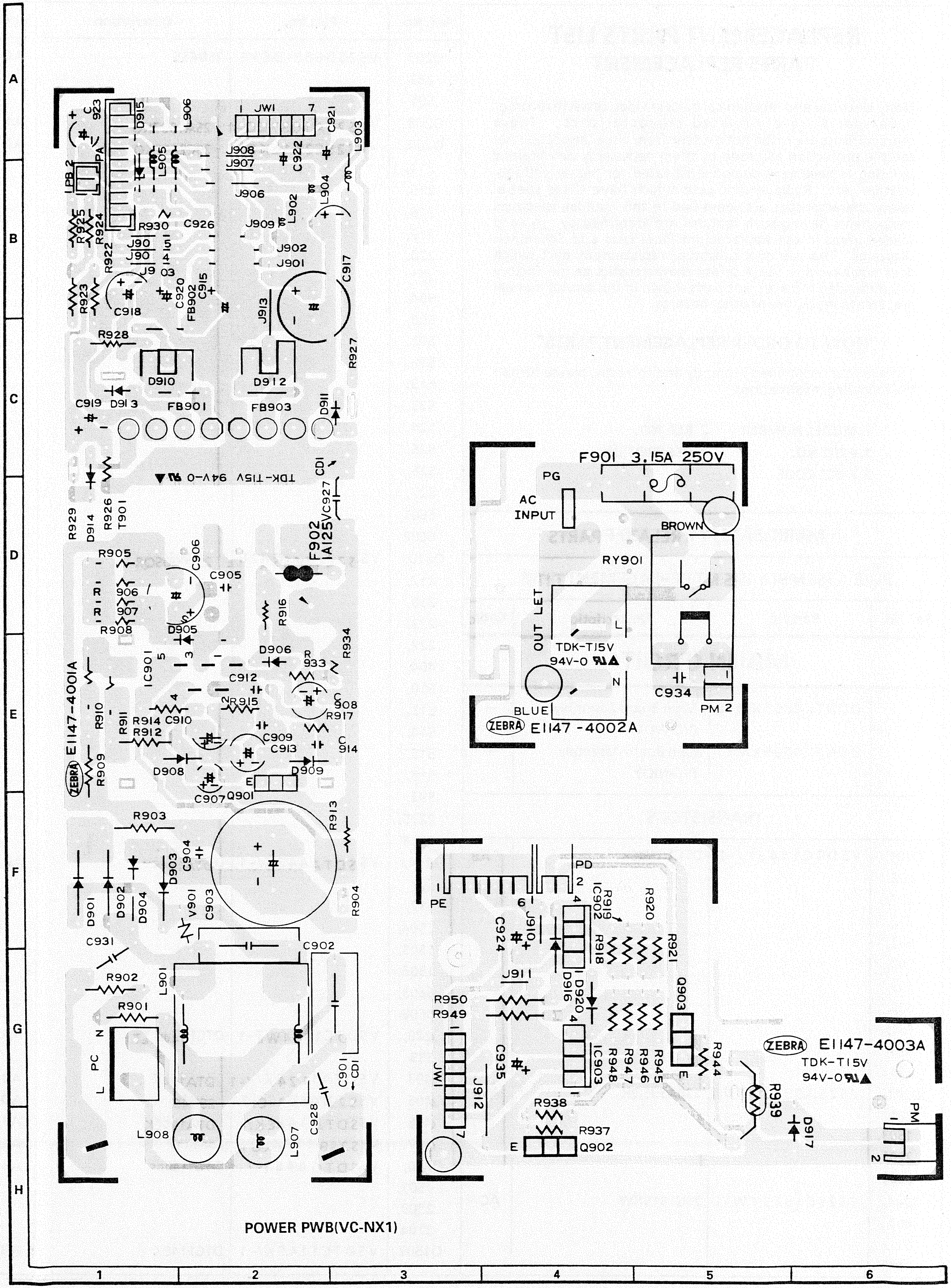
DIGITAL SUB PWB


DI
DP
DD
DG
DN
DL
DK
DF
DC
DA
CN1
CN2
CN3
K3874XJ
N3874GE
IC2801
IC2802
IC2807
IC2808
IC2809
IC2810
IC2811
IC2812
IC2813
IC2815
SW2801
D2802
X2801
X2802
FL2809
FL2815
FL2820
FL2822
FL2827
FL2828
FL2829
FL2831
FL2832
FL2833

DIGITAL PWB


A
B
C
D
E
F
G
H
1
2
3
4
5
6
JW1
J908
J907
J906
J909
J902
J901
J903
J913
C923
C921
C922
C926
C916
C917
C918
C920
C915
C919
L906
L905
L903
L904
L902
D915
PA
PB
R925
R924
R922
R923
R930
R928
FB902
D910
D912
D911
R927
D913
FB901
FB903
CDI
TDK-T15V 94V-0
C927
R929
D914
R926
T901
R905
C906
C905
P901 (SOC 1A)
906
907
R908
D905
R916
IC901
D906
R933
R934
C912
R915
C908
R917
R910
R911
R914
C910
R912
C909
C913
C914
R909
D908
D909
C907
Q901
E1158-4001A
ZEBRA
R903
R913
C904
D901
D902
D904
D903
V901
C903
R904
C931
C902
R902
L901
R901
PC
N
L
C901
CDI
C928
L908
L907
TDK-T 15V
94V-0
BROWN
BLUE
L
N
PG
AC
INPUT
F901 T3.15A
250V
E1158-4002A
PD
PE
6
4
2
J910
IC902
R919
R920
C924
R918
R921
J911
D916
D920
Q903
R950
R949
IC903
R948
R947
R946
R945
E
R944
C935
JW1
J912
7
R938
R937
Q902
E
R939
D917
PM
1
2
E1158-4003A
TDK-T 15V
94V-0

POWER PWB(VC-WD1)


A
B
C
D
E
F
G
H
1
2
3
4
5
6
C923
PA
PB 2
D915
L906
L905
JW1
J908
J907
J906
C922
C921
L903
L904
L902
J909
R930
C926
R925
R924
R922
J902
J901
C917
C918
C920
FB902
C915
J913
R923
R928
D910
D912
R927
C919
D913
FB901
FB903
D911
TDK-T15V 94V-0
CD1
C927
R929
D914
R926
T901
F902 1A125V
R905
C906
C905
R916
R934
R908
D905
D906
R933
IC901
C912
R915
C908
R917
E1147-4001A
R910
R911
R914
C910
R912
C909
C913
C914
ZEBRA
R909
D908
D909
C907
Q901
R903
R913
C904
D903
D901
D902
D904
V901
C903
R904
C931
C902
R902
L901
R901
PC
C901
C928
L908
L907
F901 3.15A 250V
PG
AC INPUT
BROWN
RY901
OUT LET
TDK-T15V
94V-0
C934
PM 2
BLUE
ZEBRA E1147-4002A
PD
PE
R919
IC902
R920
J910
C924
R918
R921
J911
D916
D920
Q903
R950
R949
C935
IC903
R948
R947
R946
R945
R944
JW1
J912
R938
R937
Q902
R939
D917
PM
ZEBRA E1147-4003A
TDK-T15V
94V-0

POWER PWB(VC-NX1)

REPLACEMENT PARTS LIST

PARTS REPLACEMENT

Many electrical and mechanical parts in video cassette recorder have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION
5. PRICE CODE

⚠ MARK:SAFETY RELATED PARTS

PWB ASSEMBLY IS NOT REPLACEMENT ITEM

Ref. No.	Part No.	Description	Code
	MAIN CIRCUIT		
	DUNTK4005XM50	Main Board Assembly (VC-WD1)	—
	DUNTK4005XM51	Main Board Assembly (VC-NX1)	—
	TRANSISTORS		
Q201, 202, 207, 212, 502, 507, 509, 530, 531, 533, 534	VSDTC144EK/-1	DTC144EK	AB
Q203, 401, 1503, 2201, 2202	VS2SA933SQR1E	2SA933SQR	AB
Q204, 402, 511, 1502	VS2SC1815YW-1	2SC1815YW	AC
Q205, 222, 501	VS2SD655-DE1E	2SD655	AC
Q208	VS2SA1037KQ-1	2SA1037KQ	AA
Q209, 211, 215, 216, 219, 220, 221, 504, 505, 508, 518, 519, 523, 524, 525, 526, 527, 6601, 6602	VS2SC2412KQ-1	2SC2412KQ	AA
Q210, 217, 218, 223, 227, 404, 510, 513, 514, 515, 516, 532, 2205, 2206	VS2C1740SQR1E	2C1740SQR	AC
Q214, 503, 512, 1504, 1505, 1506, 6603, 6606	VSDTA144EK/-1	DTA144EK	AC
Q228, 535	VSDTC144WLT-1	DTC144WLT	AA
Q403	VSDTA124EK/-1	DTA124EK	AB
Q405	VS2SD468-C/-1	2SD468	AD
Q406	VSDTA114EK/-1	DTA114EK	AB
Q407	VS2SB1117KU1E	2SB1117	AE
Q230, 1501, 2203, 2204	VSDTC144ES/-1	DTC144ES	AB
Q1507	VSDTC114EK/-1	DTC114EK	AB

Ref. No.	Part No.	Description	Code
Q6604	VSDTC143ES/-1	DTC143ES	AB
Q6607	VSDTA143ES/-1	DTA143ES	AB

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC201	VHiAN3248NK-1		AP
IC202	VHiLC8992//-1		AK
IC501	VHiTA8757AN-1		AP
IC502	VHiBA7025L/-1		AP
IC1501	RH-iX0203GEZZ		AE
IC1502	VHiTA7348P/-1		AK
IC1503	VHiUPC574JT-1		AC
IC2201	VHiBA10358N-1		AC
IC6601	VHiBA15218N-1		AD

DIODES AND CRYSTAL

Ref. No.	Part No.	Description	Code
D202, 203, 204, 205, 209, 213, 402, 501, 502, 505, 506, 507, 508, 509, 510, 511, 512, 516, 517, 1502, 1505, 2201, 6601, 6602, 6603, 6605	RH-DX0053GEZZ	1SS132	AA
D206, 401	RH-EX0135GEZZ	Zener Diode	AA
D207	RH-DX0028GEZZ	DCE-015-WA	AC
D1501	RH-EX0374GEZZ	HZS6	AA
D1503	VHD1S2837//1E	1S2837	AC
X201	RCRSB0121GEZZ	Crystal	AH
X501	RCRSB0002CEZZ	Crystal	AM
X502	RCRSB0009GEZZ	Crystal	AL
TH501	RH-HZ0030GEZZ	Thermistor	AB
TH2201, 2202	RH-HZ0037GEZZ	Thermistor	AB

CONTROLS

Ref. No.	Part No.	Description	Code
R209,	RVR-M4417GEZZ	22k (B), PB Level adj.	AB
218		22k (B), EE Level adj.	
R223,	RVR-M4415GEZZ	10k (B), White Clip Level adj.	AB
227,		10k (B), FM Carrier Level adj	
6618		10k (B), Audio Level adj	
R228	RVR-M4413GEZZ	4.7k (B), Deviation Level adj.	AB
R234	RVR-M4407GEZZ	470 (B), LNC. Level adj.	AB
R514,	RVR-M4411GEZZ	2.2k (B), REC C Level adj.	AB
2201		2.2k (B), REC Y Level adj.	

COILS AND TRANSFORMERS

Ref. No.	Part No.	Description	Code
L201	VP-XF820K0000	82μH	AB
L202, 210, 216	VP-XF150K0000	15μH	AB
L203, 211	VP-XF560K0000	56μH	AB
L204, 214	VP-XF330K0000	33μH	AB
L205, 209, 401, 508, 510, 511, 512, 1502, 2204	VP-DF221K0000	220μH	AB
L206, 208	VP-XF101K0000	100μH	AB
L207, 217, 2203	VP-XF151K0000	150μH	AB
L213	VP-XF100K0000	10μH	AB
L218	VP-XF470K0000	47μH	AB
L502, 503, 504	VP-DF471K0000	470μH	AB
L505	VP-XF221K0000	220μH	AB
L506	VP-XF5R6K0000	5.6μH	AB
L507	VP-XF270K0000	27μH	AB
L509	VP-YF153J0000	15mH	AC
L513	VP-DF561K0000	560μH	AB
L514	VP-XF120K0000	12μH	AB
L2201	VP-MK221K0000	220μH	AB
L2202	VP-XF680K0000	68μH	AB
L2205	VP-XF181K0000	180μH	AB
FL201	RCiLF0213GEZZ	Filter	AK
FL502	RCiLF0204GEZZ	Filter	AG
FL504	RFiLC0029TAZZ	Filter	AD
FL6601, 6602	RCiLF0076GEZZ	Filter	AF

Ref. No.	Part No.	Description	Code
DL501	RCiLZ0330GEZZ		AL
DL502	RCiLZ0183GEZZ		AK
DL503	RCiLZ0292GEZZ		AP

TRIMMER

C521, 525	RTδ-H1039GEZZ	Trimmer	AC

CAPACITORS

C211, 275, 276, 286	VCFYSA1HB224J	0.22μF, 50V, 5%, Mylar	AB
C212	VCEAGA0JW107M	100μF, 6.3V, 20%, Electrolytic	AB
C214	VCE9EA1HW335M	3.3μF, 50V, 20%, Electrolytic (N.P.)	AB
C219	VCEAGA1CW107M	100μF, 16V, 20%, Electrolytic	AB
C220, 6605, 6606	RC-QZA223TAYJ	0.022μF, 50V, 5%, Mylar	AB
C234, 239	VCFYSA1HB104J	0.1μF, 50V, 5%, Mylar	AB
C405, 414	VCEA2A0JW477M	470μF, 6.3V, 20%, Electrolytic	AB
C406, 407	VCFYSA1HB563J	0.056μF, 50V, 5%, Mylar	AA
C515	RC-QZA222TAYJ	2200pF, 50V, 5%, Mylar	AB
C517	VCFYSA1HB333J	0.033μF, 50V, 5%, Mylar	AE
C535	VCFYSA1HB223J	0.022μF, 50V, 5%, Mylar	AA
C540	VCEAEA1CW107M	100μF, 16V, 20%, Electrolytic	AC
C542	VCFYSA1HB273J	0.027μF, 50V, 5%, Mylar	AA
C582	RC-QZA471TAYJ	470pF, 50V, 5%, Mylar	AB
C1501	VCEA2A1CW337M	330μF, 16V, 20%, Electrolytic	AB
C1505, 1506	VCFYSA1HB334J	0.33μF, 50V, 5%, Mylar	AB
C1516	VCE9EA1CW226M	22μF, 16V, 20%, Electrolytic (N.P.)	AC
C1520	VCEAGA1AW227M	220μF, 10V, 20%, Electrolytic	AB
C6614	RC-QZA103TAYJ	0.01μF, 50V, 5%, Mylar	AB
C6627	VCEA2U1CW337M	330μF, 16V, 20%, Electrolytic	AB

Ref. No.	Part No.	Description	Code

RESISTORS

R220	VRG-SC2EB3R3J	3.3 ohm, 1/4W, 5%, Fuse Resistor	AB
R275	VRG-SC2EB2R7J	2,7 ohm, 1/4W, 5%, Fuse Resistor	AB
R419, 501, 6650	VRG-SC2EB4R7J	4.7 ohm, 1/4W, 5% Fuse Resistor	AB
R6653	VRG-SC2EB3R9J	3.9 ohm, 1/4W, 5%, Oxide Film	AB

MISCELLANEOUS

	RiFU-0622GEZZ	IF Pack Unit	BH
	RCNVR0090GEZZ	RF Converter (VC-WD1)	BC
	RCNVR0117GEZZ	RF Converter (VC-NX1)	BE
	VTUδF4Eδ-725/	Tuner	BC
	QJAKF0009GEZZ	Jack, Video Input/Output	AD
	QJAKH0002GEZZ	Jack, Audio Input / Output	AF
	QSW-S0079GEZZ	Switch, Audio ATT	AE
	QPLGN0278GEZZ	Plug, 2 pin (CH)	AA
	QPLGN0378GEZZ	Plug, 3 pin (Test Point)	AB
	QPLGN0478GEZZ	Plug, 4 pin (CM)	AB
	QPLGN0678GEZZ	Plug, 6 pin (CF) (CL)	AB
	QPLGN0679GEZZ	Plug, 6 pin (K801, K6301, K6304)	AB
	QPLGN0778GEZZ	Plug, 7 pin (CN)	AC
	QPLGN0979GEZZ	Plug, 9 pin (K6303)	AC
	QPLGN1078GEZZ	Plug, 10 pin (CG)	AC
	QPLGN1079GEZZ	Plug, 10 pin (K802)	AB
	QPLGN1178GEZZ	Plug, 11 pin (CA) (CE)	AC
	QPLGN1220REZZ	Plug, 12 pin (CC)	AC
	QPLGN1279GEZZ	Plug, 12 pin (K803, K804, K6302)	AC
	QSδCN0794GEZZ	Socket, 7 pin (CD)	AB
	QSδCN1494GEZZ	Socket, 14 pin (CB)	AC

HEAD AMP. CIRCUIT

	DUNTK3607XM51	Head Amp. Board Assembly	—

TRANSISTORS

Q301, 302, 303	VS2SD655-DE1E	2SD655	AC
Q304	VS2SA1561Q/1E	2SA1561	AC
Q305, 306	VS2SA933SQR1E	2SA933SQR	AB
Q307	VSDTC144EK/-1	DTC144EK	AB

Ref. No.	Part No.	Description	Code
Q308	VSDTA144EK/-1	DTA144EK	AC
Q309, 310	VSDTC144ES/-1	DTC144ES	AB
Q311	VS2SA1015Y/1E	2SA1015	AC
Q312	VS2SC1815YW-1	2SC1815	AC
Q313, 314, 318, 319, 320, 321	VS2C1740SQR1E	2S1740SQR	AC
Q315	VS2SC2412KQ-1	2SC2412KQ	AA
Q316	VS2SA1037KQ-01	2SA1037KQ	AA
Q317	VSDTC114EK/-1	DTC114EK	AB

INTEGRATED CIRCUIT

IC301	VHiAN3340SC-1		AP

DIODE

D301, 302, 303, 304, 305, 306, 307, 308, 309	RH-DX0053GEZZ	1SS132	AA

COILS

L301	VP-MK101K0000	100μH	AB
L302	VP-DF101K0000	100μH	AB

CAPACITORS

C313, 314, 326, 327, 330, 331, 334, 335	VCFYSA1HB104J	0.1μF, 50V, 5%, Mylar	AB
C338	VCEAGA0JW227M	220μF, 6.3V, 20%, Electrolytic	AB
C339, 340	VCFYSA1HB473J	0.047μF, 50V, 5%, Mylar	AA

MISCELLANEOUS

	QPLGN0229TAZZ	Plug, 2pin, (TP301, 302)	AB
	QPLGN0680GEZZ	Plug, 6pin, (XC)	AB
	QPLGN1141REZZ	Plug, 11pin, (XA)	AF

Ref. No.	Part No.	Description	Code
	QPGLN1180GEZZ	Plug, 11pin (XB)	AC
FB301, 302, 303, 304, 305, 306	RBLN-0013GEZZ	Ferrite Bead	AB

TIMER CIRCUIT

	RUNTK0718GEZZ	Timer Board Assembly (VC-WD1)	—
	RUNTK0742GEZZ	Timer Board Assembly (VC-NX1)	—

TRANSISTORS

Q5001	VS2C1740SQR1E	2C1740SQR	AC
Q5002, 5007	VS2SA1037KQ-1	2SA1037KQ	AA
Q5003	VSDTC124EK/-1	DTC124EK	AB
Q5004	VS2SA733APQ1E	2SA733	AC
Q5005	VS2SC945APQ1E	2SC945	AB
Q5006, 5017, 5018	VSDTC144EK/-1	DTC144EK	AB
Q5008, 5009, 5010, 5011, 5012, 5013, 5014, 5015	VS2SC2412KQ-1	2SC2412KQ	AA

INTEGRATED CIRCUITS

IC5001	RH-iX0588GEZZ		AW
IC5002	VHiCAT93C46-1		AN
IC5003	VHiPST529i2-1		AD
IC5004	VHiMSC1195S-1		AP

DIODES AND CRYSTAL

D5001, 5002, 5003, 5004, 5005, 5006, 5007, 5008, 5009,	RH-DX0053GEZZ	1SS132	AA

Ref. No.	Part No.	Description	Code
5015,			
5018,			
5019,			
5020,			
5021			
D5014,	VHDDAN202K/-1		AB
5043			
D5017	RH-EX0630GEZZ	MTZJ9.1B	AA
D5025,	RH-PX0201GEZZ	LED	AB
5026,			
5027,			
5034,			
5035,			
5036			
D5028,	RH-PX0206GEZZ	LED	AB
5029,			
5030,			
5037,			
5038,			
5039			
D5031,	RH-PX0203GEZZ	LED	AB
5032,			
5033,			
5040,			
5041,			
5042,			
5044,			
5045,			
5046,			
5047,			
5048,			
5049			
X5001	RCRSB0090GEZZ	Crystal	AE

CONTROL

R5028	RVR-M4407GEZZ	470 (B) Tuning indicator adj.	AB

COILS AND TRANSFORMERS

L5001	VP-XF100K0000	10μH	AB
L5002	VP-MK220K0000	22μH	AB
L5003	VP-DF101K0000	100μH	AB
FL5001	RFiLC0118GEZZ	Filter	AC

CAPACITORS

C5001	RC-EZ0390GEZZ	0.047F, 5.5V, +80%~-20%, Electrolytic	AF
C5006	VCFYSA1HB224J	0.22μF, 50V, 5%, Mylar	AB
C5027,	VCEAEA0JW227M	220μF, 6.3V, 20%, Electrolytic	AC
5040			
C5032	RC-QZA223TAYJ	0.022μF, 50V, 5%, Mylar	AB
C5033	VCFYSA1HB473J	0.047μF, 50V, 5%, Mylar	AA

Ref. No.	Part No.	Description	Code

MISCELLANEOUS

DG5001	VVKBG839GK/-1	Fluorescent display tube	AY
	RRMCU0037GEZZ	R/C Receiver	AL
SW5001,	QSW-K0079GEZZ	Switch, Clock	AB
5002,		Switch, PROG	
5003,		Switch, (−)	
5004,		Switch, (+)	
5005,		Switch, Timer	
5006,		Switch, Clear/Skip	
5007		Switch, ACL	
SW5008	QSW-S0123GEZZ	Switch, Tuner system	AD
SW5009,	QSW-S0122GEZZ	Switch, TV/VTR (VC-NX1)	AD
5010		Switch, Output select	
SW5011	QSW-S0231GEZZ	Switch, Input/PB system	AF
	QPLGN0278GEZZ	Plug, 2pin (TF) (VC-NX1)	AA
	QPLGZ0302KDZZ	Plug, 2pin (TJ)	AA
	QPLGN0378GEZZ	Plug, 3pin (TG)	AB
	QPLGN0478GEZZ	Plug, 4 pin (TE)	AB
	QPLGN0778GEZZ	Plug, 7 pin (TH)	AC
	QPLGN1020REZZ	Plug, 10 pin (TB)	AB
	QPLGZ1030GEZZ	Plug, 10pin (TA)	AC
	QSOCN0713REZZ	Socket, 7 pin (TC)	AC
	QSOCN0913REZZ	Socket, 9 pin (TD)	AB
	QSOCN1413REZZ	Socket, 14 pin (TI)	AC

OPERATION CIRCUIT

	DUNTK3608HE53	Operation Board Assembly	−

DIODE

D8101	RH-PX0204GEZZ	LED	AB

CONTROL

R8109	RVR-B4262GEZZ	10k (B), Picture Tone	AD

MISCELLANEOUS

SW8101,	QSW-K0052GEZZ	Switch, Power	AB
8102		Switch, Eject	
SW8103,	QSW-K0079GEZZ	Switch, REW	AB
8104,		Switch, Play	
8105,		Switch, FF	
8106,		Switch, Stop	
8107,		Switch, Pause/Still	
8108,		Switch, REC	
8109,		Switch, SP/LP. EP	
8110,		Switch, TR/MT (−)	
8111,		Switch, TR/MT (+)	
8112,		Switch, Preset/Band	
8113		Switch, Display	
SW8114	QSW-S0122GEZZ	Switch, N-Head	AD
	QPLGN0278GEZZ	Plug, 2pin (HB)	AA
	QSOCZ1030GEZZ	Socket, 10pin (HA)	AC

SYSTEM CONTROL / SERVO CIRCUIT

Ref. No.	Part No.	Description	Code
	RUNTK0722GEN1	System Control / SERVO Board Assembly	–

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q701, 702, 703	98M-2SA1162Y/	2SA1162Y	AB
Q704	98M-UN2111///	UN2111	AB
Q705, 707, 709, 802, 803, 804, 805, 806	98M-2SC2712Y/	2SC2712Y	AB
Q706, 807	98M2SD655DE//	2SD655	AC
Q708, 809, 810	98M-UN2112///	UN2112	AB
Q710	98M-UN2212///	UN2212	AB
Q801, 808	98M2SC2001L//	2SC2001LK	AC

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC701	RH-iX0972GEZZ		AS
IC702	98M-M5218AL//		AD
IC801	RH-iX0804GEZZ		AW
IC802	RH-iX0479GEZZ		AL
IC803	VHiBA6209//1E		AG
IC804	VHiPST529H2-1		AD

DIODES

Ref. No.	Part No.	Description	Code
D701, 702, 703, 705, 707, 802, 803, 804, 805, 807, 808	98M-MA221////	MA221	AB
D704, 806	98M-02CZ5.1Y/	02CZ5.1Y	AB
D706	98M-HSM123///	HSM123	AB
D708	98M-MA159A///	MA159A	AB

CONTROLS

Ref. No.	Part No.	Description	Code
R751	98MVG066HB104	100k (B), 50 SW. P. adj.	AC
R753	98MVZ066HB684	680k (B), 60 SW. P. adj.	AC

COIL

Ref. No.	Part No.	Description	Code
FL801	RFiLC0073GEZZ	Filter	AL
	or		
	RFiLC0118GEZZ	Filter	AC

CAPACITORS

Ref. No.	Part No.	Description	Code
C711, 722	98MECEA1AU101	100μF, 10V, Electrolytic	AB
C725, 730	98MECEA1HN2R2	2.2μF, 50V, Electrolytic (N.P.)	AB
C735	98MECEA1CN100	10μF, 16V, Electrolytic (N.P.)	AB
C801	98MECEA1CU331	330μF, 16V, Electrolytic	AC
C802	98MECEA1HN010	1μF, 50V, Electrolytic (N.P.)	AB

RESISTOR

Ref. No.	Part No.	Description	Code
R852	98MFMR14B3R3J	3.3 ohm, 1/4 W, Fuse Resistor	AB
	or		
	VRG-SC2EB3R3J	3.3 ohm, 1/4 W, Fuse Resistor	AB

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
	98MJST06MQ-ST	Plug, 6 pin (K801)	AC
	98MJST10MQ-ST	Plug, 10 pin (K802, K804)	AC
	98MJST12MQ-ST	Plug, 12 pin (K803)	AD
	98MB3B-PH-K-S	Plug, 3 pin (AF, AH)	AA
	98MB5B-PH-K-S	Plug, 5 pin (AK)	AB
	98MB6B-PH-K-S	Plug, 6 pin (AN)	AB
	98MB7B-PH-K-S	Plug, 7 pin (AL)	AB
	98MB8B-PH-K-S	Plug, 8 pin (AD)	AB
	98MS3B-PH-K-S	Plug, 3 pin (TP)	AB
	98M8370-211//	Socket, 21 pin (AM)	AE
	98M8370-061//	Socket, 6 pin (AG)	AC
	98M8370-091//	Socket, 9 pin (AT)	AD

DIGITAL CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK3874XJ6A	Digital Board Assembly	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q2801, 2802, 2808, 2809, 2810, 2811, 2825, 2827, 2828	VS2SC4081R/-1	2SC4081R	AA
Q2804, 2805, 2806, 2813, 2814, 2815	VS2SA1576R/-1	2SA1576R	AA
Q2807, 2812	VS2SC2412KQ-1	2SC2412KQ	AA
Q2820, 2824	VSDTC124EK/-1	DTC124EK	AB
Q2821, 2823	VSDTA124EK/-1	DTA124EK	AB
Q2822, 2826	VSDTA124EU/-1	DTA124EU	AB

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC2801	RH-iX0979GEZZ		BB
IC2802	RH-iX0980GEZZ		BG
IC2807	VHiCXD1178Q-1		AX
IC2808	VHiCD1175AM-1		AX
IC2809	RH-iX1974CEZZ		AG
IC2810	VHiUPC358G/-1		AC
IC2811	VHi74LS628S-1		AN
IC2812	VHiTC7WU04F-1		AD
IC2813, 2815, 2951	VHiTC4W53F/-1		AE
IC2814	VHiBA225F//-1		AF

DIODES AND CRYSTALS

Ref. No.	Part No.	Description	Code
D2801, 2802, 2803, 2804, 2805, 2806	VHDDAN202K/1E		AB
TH2801	RH-HZ0033GEZZ	Thermistor	AB
X2801	RCRSB0116GEZZ	Crystal	AG
X2802	RCRSB0149GEZZ	Crystal	AG

FILTERS

Ref. No.	Part No.	Description	Code
FL2808, 2809, 2812, 2813, 2814, 2815	RFiLN0097GEZZ	Filter	AF
FL2820, 2827	RFiLN0088GEZZ	Filter	AN
FL2822, 2828, 2829, 2831	RFiLN0091GEZZ	Filter	AN
FL2830, 2833, 2834, 2849, 2850	RFiLN0083GEZZ	Filter	AD
FL2832	RFiLN0089GEZZ	Filter	AN
FL2842, 2844, 2845, 2846, 2847	RFiLN0056GEZZ	Filter	AF
FL2843	RFiLN0095GEZZ	Filter	AF
FL2848	RFiLN0035GEZZ	Filter	AH

CONTROLS

Ref. No.	Part No.	Description	Code
R2809,	RVR-M7899TAZZ	4.7k (B), CL Amp Level adj.	AC
2840,		4.7k (B), OSC. Level adj.	
2912		4.7k (B), CL Amp Level adj.	
R2833	RVR-M7895TAZZ	1k (B), D/A Level adj.	AC
R2861,	RVR-M7907TAZZ	100k (B), TRK. Preset Level adj.	AC
2863		100k (B), N-PB Phase Level adj.	

CAPACITORS

Ref. No.	Part No.	Description	Code
C2806, 2821, 2834, 2857, 2860	VCSATF1AJ476M	47μF, 10V, 20%, Tantalum	AF
C2809, 2810, 2811, 2812, 2813, 2824, 2825, 2826, 2828, 2836,	VCFYEC1CM104J	0.1μF, 16V, 5%, Mylar	AD

Ref. No.	Part No.	Description	Code
2838, 2868, 2869, 2870, 2871			
C2823	VCEAPF0JW107M	100μF, 6.3V, 20%, Electrolytic	AC
C2829, 2831, 2832, 2833	VCFREC1CM473J	0.047μF, 16V, 5%, Mylar	AD

MISCELANEOUS

Ref. No.	Part No.	Description	Code
FB2801, 2807, 2809	RBLN-0065CEZZ	Ferrite Bead	AB
	QCNCM2438TAZZ	Connector (CN1, CN2, CN3)	
	QPLGN0420REZZ	Plug, 4 pin (DG)	AB
	QPLGN0478GEZZ	Plug, 4 pin (DP)	AB
	QPLGN0720REZZ	Plug, 7 pin (DL)	AB
	QPLGN0820REZZ	Plug, 8 pin (DF)	AB
	QPLGN0920REZZ	Plug, 9 pin (DD)(DK)	AB
	QPLGN1020REZZ	Plug, 10 pin (DN)	AB
	QPLGN1220REZZ	Plug, 12 pin (DA)(DI)	AB
	QPLGN1320REZZ	Plug, 13 pin (DC)	AB
S2801	QSW-S0060TAZZ	Switch, On	AD

DIGITAL SUB CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK4083XJ6A	Digital Sub Board Assembly	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q2818, 2819	VSDTC124EU/-1	DTC124EU	AB

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC2803, 2804, 2805, 2806	VHiCXK1206M-1		BF

FILTERS

Ref. No.	Part No.	Description	Code
FL2819	RFiLN0097GEZZ	Filter	AF

MISCELANEOUS

Ref. No.	Part No.	Description	Code
	QCNCW2432TAZZ	Connector (CN1, CN2, CN3)	AH

ANALOG CIRCUIT

Ref. No.	Part No.	Description	Code
	DUNTK3875XJ6A	Analog Board Assembly	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q2601, 2602, 2611, 2702, 2703, 2704, 2707, 2711, 2712, 2714, 2715, 2716, 5604, 5701, 5702	VS2SA1576R/-1	2SA1576R	AA
Q2603, 2606, 2613, 2615, 2619, 2713	VSDTC124EU/-1	DTC124EU	AB
Q2604, 2605, 2607, 2608, 2609, 2610, 2612, 2616, 2617, 2618, 2621, 2622, 2701, 2705, 2706, 2708, 2709, 2710, 5601, 5602, 5603, 5611, 5703, 5704, 5705, 5706	VS2SC4081R/-1	2SC4081R	AA
Q2614, 2620	VSDTA124EU/-1	DTA124EU	AB

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC2601	VHiTA8795F/-1		AZ
IC2602,	VHiTA7347P/-1		AG
2603,			
2705			
IC2701	VHiM51285FB-1		AV
IC2702	VHiAN3916LF-1		AL
IC2703,	VHiNJM2243M-1		AF
2704			
IC2706	VHiTC4W53F/-1		
IC5601	VHiBA7007F/-1		AH
IC5701	VHiTDA2506T-1		AW
IC5702	VHiTDA2507T-1		AU

DIODES AND CRYSTALS

Ref. No.	Part No.	Description	Code
D2601,	VHDDAN202U/-1		AA
2701,			
2702,			
2703,			
2704,			
2706,			
2707,			
5611			
D2705,	VHDHSM88AS/-1		AC
5601			
X2601	RCRSB0005CEZZ	Crystal	AN
X2602	RCRSB0002CEZZ	Crystal	AM
X2701	RCRSB0085GEZZ	Crystal	AG
X2702	RCRSB0089GEZZ	Crystal	AG

COILS AND TRANSFORMERS

Ref. No.	Part No.	Description	Code
L2601,	VP-MK221K0000	220μH	AB
2605,			
2701			
5601,			
5704			
L2603	VP-1M150K2R2N	15μH	AC
L2604	VP-MK270K0000	27μH	AB
L2606	VP-MK330K0000	33μH	AB
L2702	VP-1M820K7R7N	82μH	AC
L2703	VP-1M101K7R7N	100μH	AC
L2704,	VP-1M221K170N	220μH	AC
2705,			
2706,			
2707			
L2708	VP-1M680K6R9N	68μH	AC
L5602	VP-YF682J0000	6800μH	AC
L5603	VP-MK680K0000	68μH	AB
L5604	VP-YF153J0000	15mH	AC
L5701	VP-YF221K0000	220μH	AC
L5702	VP-YF152J0000	1500μH	AB
L5703	VP-YF102J0000	1000μH	AC
CF2601	RFiLA0034CEZZ	Filter	AD
CF2602	RFiLC0015TAZZ	Filter	AE
CF2701	RFiLA0005CEZZ	Filter	AE
DL2601	RCiLZ0808CEZZ	Coil	AR
DL2602	RCiLZ0795CEZZ	Coil	AH
DL2603	RCILZ0773CEZZ	Coil	AT
FL2701	RMPTD0361GEZZ		
FL2702	RCiLV0090GEZZ	Coil	AG
FL2703	RCiLV0089GEZZ	Coil	AG
FL2704	RCiLF0243GEZZ	Coil	AH
FL2705	RFiLN0035CEZZ	Filter	AH
FL2706	RMPTD0363GEZZ		
FL5601,	RMPTD0257GEZZ		
5701			
FL5602	RFiLC0029TAZZ	Filter	AD
FL5702	RCiLV0093GEZZ	Coil	AE
FL5703	RCiLV0092GEZZ	Coil	AE
T2601	RCiLi0364CEZZ	IF Coil	AD
T2602,	RCiLi0435CEZZ	IF Coil	AE
2604,			
2605			
T2603	RCiLZ0511CEZZ	Coil	AD
T2606	RCiLi0512CEZZ	IF Coil	AE
T2607	RCiLi0520CEZZ	IF Coil	AE

CONTROLS

Ref. No.	Part No.	Description	Code
R2629,	RVR-M4163GEZZ	4.7k (B), NTSC Tint	AB
2640		4.7k (B), Color	
R2635,	RVR-M4159GEZZ	1k (B), DL Level adj.	AB
2723,		1k (B), R-Y Burst Level adj.	
2725,		1k (B), B-Y Burst Level adj.	
2728		1k (B), NTSC Burst Level adj.	
R2730,	RVR-M4328GEZZ	2.2k (B), R-Y Level adj.	AB
2731,		2.2k (B), B-Y Level adj.	
5701,		2.2k (B), SACAM B-Y Level adj.	
5702,		2.2k (B), SACAM R-Y Level adj.	
5709		2.2k (B), SACAM Level adj.	
R2771	RVR-M4169GEZZ	47k (B), AGC Level adj.	AB

TRIMMER

Ref. No.	Part No.	Description	Code
C2703,	RTδ-H1030GEZZ	Trimmer	AD
2706			
C2719,	RTδ-H1028GEZZ	Trimmer	AD
2721			

CAPACITORS

Ref. No.	Part No.	Description	Code
C2617, 2712, 2713	VCFYEC1CM223J	0.022μF, 16V, 5%, Mylar	AC
C2619	VCEAPF0JW107M	100μF, 6.3V, 5%, Electrolytic	AC
C2622, 2624	VCFYEC1CM563J	0.056μF, 16V, 5%, Mylar	AC
C2629, 2734	VCFYEC1CM104J	0.10μF, 16V, 5%, Mylar	AD
C2633, 2680, 2728, 5705	VCE9PF1HW105M	1μF, 50V, Electrolytic (N.P.)	AC
C2634	VCFYSA1HB563J	0.056μF, 50V, Mylar	AA
C2635, 5614	VCFYEC1CM273J	0.027μF, 16V, Mylar	AC
C2714	VCEA2A0JW477M	470μF, 6.3V, Electrolytic	AB
C2737	VCE9PF1VW475M	4.7μF, 35V, Electrolytic (N.P.)	AC
C2746	VCFYEC1CM473J	0.047μF, 16V, Mylar	AC
C2762	VCE9EA1CW226M	22μF, 16V, Electrolytic (N.P.)	AC
C5713, 5715	VCFYSA1HB224J	0.22μF, 50V, Mylar	AB
C5716	VCFYEC1CM392J	3900pF, 16V, Mylar	AC
C5723, 5726	VCFYSA1HB334J	0.33μF, 50V, Mylar	AB

MISCELLANEOUS PARTS

Ref. No.	Part No.	Description	Code
	QPLGN0220REZZ	Plug, 2 pin (FH) (TP2704)	AB
	QPLGN0320REZZ	Plug, 3 pin (FD)	AB
	QPLGN0620REZZ	Plug, 6 pin (FA) (FB)	AB
	QPLGN0720REZZ	Plug, 7 pin (FC) (FE)	AB
	QPLGN0920REZZ	Plug, 9 pin (FF)	AB
	QPLGN1020REZZ	Plug, 10 pin (FG)	AB

HiFi MODULE CIRCUIT

Ref. No.	Part No.	Description	Code
	RUNTK0631GEZZ	HiFi module Board Assembly	—

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q6301	98M-2SC3939R/	2SC3939	AC
Q6302	98M-UN2212/// or 98M-RN1403///	UN2212 RN1403	AB AB
Q6303	98M2SC2712Y/G	2SC2712	AB
Q6305, 6310, 6321, 6322, 6326	98M-DTC144EK/ or 98M-UN2213///	DTC144 UN2213	AB AB
Q6306, 6311, 6312, 6324, 6325, 6327, 6328	98M-DTC143TK/ or 98M-UN2216///	DTC143TK UN2216	AB AB
Q6307, 6313, 6318, 6319, 6320, 6323	98M-DTA124EK/ or 98M-UN2112///	DTA124 UN2112	AB AB
Q6308	98M-DTC124EK/ or 98M-UN2212///	DTC124 UN2212	AB AB
Q6309	98M-DTC363TK/	DTC363TK	AC
Q6314	98M-UN2112/// or 98M-RN2403///	UN2112 RN2403	AB AB
Q6315, 6316, 6317	98M-2SD1306//	2SD1306	AC
Q6329	98M2SA1162Y/G	2SA1162	AB

INTEGRATED CIRCUITS

Ref. No.	Part No.	Description	Code
IC6301	VHiBA7755//-1		AD
IC6302	VHiHA12137/-1		AS
IC6303	VHiHA12150/-1		AW
IC6304	VHiHA12124/-1		AH
IC6305	98MPQ30RV11//		AH

DIODES

Ref. No.	Part No.	Description	Code
D6301, 6305, 6306, 6308	98MMA221/////	MA221	AB
D6302, 6303	98MHZM2836C// or 98MMA151WA///	HZM2836C MA151WA	AB AB
D6304	98MHZM2838C// or 98MMA151WK///	HZM2838C MA151WK	AB AB
D6307	98MHZM2838C//	HZM2838C	AB

Ref. No.	Part No.	Description	Code
	CONTROLS		
R6301,	98MVZ066H1B55	500k (B), Bais Curr.	AB
6366		500k (B), D.O.C. Level	
R6311,	98MVZ066L1B53	5k (B), EE Level (R)	AB
6313		5k (B), EE Level (L)	
R6325	98MVZ066H1B52	500 (B), Normal PB Level	AB
R6351,	98MVZ066H1B14	10k (B), Level Meter (L)	AB
6352		10k (B), Level Meter (R)	
R6362,	98MVZ066L1B54	50k (B), Deviation (L)	AC
6374		50k (B), Deviation (R)	
R6364,	98MVZ066L1BE4	15k (B), PB Level (L)	AB
6382		15k (B), PAL PB Level (R)	
	COILS AND TRANSFORMERS		
L6301	98M0606RA471K	470μH	AB
L6302	98M-L06TB682J	6.8mH	AC
L6303,	98M0405RA101K	100μH	AB
6304			
FL6301	RCiLF0076GEZZ	Filter	AF
FL6302	RCiLi0060GEZZ	Filter	AD
FL6303	RCiLF0184GEZZ	Filter	AF
FL6304	RCiLF0139GEZZ	Filter	AG
FL6305	RCiLF0185GEZZ	Filter	AF
FL6306	RCiLF0138GEZZ	Filter	AG
T6301	RTRNH0053GEZZ	Transformer	AE
	CAPACITORS		
C6327,	98MA1CU101B//	100μF, 16V, Electrolytic	AB
6336,			
6338,			
6369			
C6352,	98MA1AU101B//	100μF, 10V, Electrolytic	AB
6368			
C6355	98MA0JU221B//	220μF, 6.3V, Electrolytic	AB
C6402	98MA1CU471BQ/	470μF, 16V, Electrolytic	AC
	MISCELLANEOUS		
	98M06MQ-ST///	Socket, 6 pin (K6301, K6304)	AC
	98M12MQ-ST///	Socket, 12 pin (K6302)	AD
	98M09MQ-ST///	Socket, 9 pin (K6303)	AC
	98MS5B-PH-KS/	Plug, 5 pin (BA)	AB
	98MB4B-PH-KS/	Plug, 4 pin (BB, BC)	AB

Ref. No.	Part No.	Description	Code
	JACK CIRCUIT		
	RUNTK0721GEZZ	Jack Board Assembly	—
	DIODES		
D6901,	RH-DX0053GEZZ	1SS132	AA
6902			
	MISCELLANEOUS		
	QPLGN0380GEZZ	Plug, 3 pin (SB)	AB
	QPLGN0680GEZZ	Plug, 6 pin (SA)	AB
	POWER CIRCUIT		
	RDENC0515GEZZ	Power Board Assembly (VC–NX1)	—
	RDENC0516GEZZ	Power Board Assembly (VC–WD1)	—
	TRANSISTOR		
⚠Q901	95KUAD0046AZ	2SD882	AH
⚠Q902	95KUAA0006AK	2SA733-T (VC-NX1)	AB
⚠Q903	95KUAZ0004AK	BA1F4M-T (VC-NX1)	AB
	INTEGRATED CIRCUITS		
⚠IC901	95KUCC0042AZ		AR
⚠IC902,	95KUCB0077AZ		AH
⚠ 903			
	DIODES		
⚠D901,	95KUBC0213FK	RL156-F	AC
⚠ 902,			
⚠ 903,			
⚠ 904			
⚠D905	95KUBC0214BK	R1200F-F	AC
⚠D906	95KUBC0178AB	D1NL20-4060	AD
⚠D908,	95KUBA0005KZ	1SS55-T4	AB
⚠ 916,			
917,		(VC-NX1)	
⚠ 920			
⚠D909	95KUBC0143AK	EU1ZV1	AC
⚠D910	95KUBB0195AZ	YG901C2	
⚠D911,	95KUBC0250AK	5ELS2-TA2B2	AC
⚠ 914			
⚠D912	95KUBB0194AZ	YG801C09	
⚠D913	95KUBC0182CK	10ELS4-TA2B2	AC
D915	95KUBDAK8R2C	RD8.2ESAB2-T4	AB
⚠VA901	95KUEZ0373ZZ	TNR12G471	

COILS AND TRANSFORMER

Ref. No.	Part No.	Description	Code
⚠L901	95KUKZ0193ZZ	Line Filter	AM
L902	95KUKZ0251ZZ	Choke Coil	AE
L903	95KUKZ0256ZZ	Inductance Coil	AC
L904	95KUKZ0447ZK	Filter	
L905, 906	95KUKZ0258ZZ	Inductance Coil	AC
⚠L907, ⚠ 908	95KUKZ0469ZK	Inductance Coil	AE
⚠T901	95K129035047	PTTP53	AY

CAPACITORS

Ref. No.	Part No.	Description	Code
⚠C901	95KUGZ0687ZZ	0.1μF, 250V, Film	AB
⚠C902	95KUGZ0662ZZ	0.047μF, 50V, Ceramic	AE
⚠C903	95KUGBQ680BT	68μF, 400V, Electrolytic	AP
⚠C904, ⚠ 905	95KUGCU101BH	100pF, 1kV, Ceramic	AB
⚠C906	95KUGAM1R0QG	1μF, 250V, Electrolytic	
⚠C907	95KUGAJ100FD	10μF, 100V, Electrolytic	AC
⚠C908	95KUGAB220HV	22μF, 10V, Electrolytic	
⚠C909	95KUGFF333BQ	0.033μF, 50V, Mylar	AB
⚠C910	95KUGAC101FD	100μF, 16V, Electrolytic	AC
⚠C912	95KUGFJ102EL	1000pF, 100V, Film	AB
⚠C913	95KUGAC100HV	10μF, 10V, Electrolytic	AF
⚠C914	95KUGCS471AA	470pF, 500V, Ceramic	AB
⚠C915	95KUGAD102DW	1000μF, 25V, Electrolytic	AF
C917	95KUGAC122NS	1200μF, 16V, Electrolytic	AE
⚠C918	95KUGAJ220FD	22μF, 100V, Electrolytic	AD
C919	95KUGZ0801ZZ	100μF, 10V, Electrolytic	
C923	95KUGZ0742ZZ	2.2μF, 100V, Electrolytic	AB
⚠C924	95KUGAC470FD	47μF, 16V, Electrolytic	AB
⚠C927, ⚠ 931	95KUGCZ471BT	470pF, 4KV, Ceramic	AC
⚠C928	95KUGCZ102BP	1000pF, 4kV, Ceramic	AD

RESISTORS

Ref. No.	Part No.	Description	Code
⚠R901, ⚠ 902	95KUECC685AE	6.8M ohm, 1/2W, Solid (VC-WD1)	AB
⚠R901, ⚠ 902	95KUEZ0437ZK	6.8M ohm, 1/2W, Solid (VC-NX1)	AB
⚠R903	95KUEFG5R6AA	5.6 ohm, 5W, Oxide Film (VC-WD1)	AD
⚠R903	95KUEFF3R3AP	3.3 ohm, 3W, Oxide Film (VC-NX1)	AD
⚠R904, ⚠ 929	95KUEBBR39AM	0.39 ohm, Fuse Resistor	AC
⚠R905, ⚠ 906, ⚠ 907, ⚠ 908	95KUEEC683AT	68k ohm, 1/2W Carbon	
⚠R909, ⚠ 910, ⚠ 911, ⚠ 912	95KUEEC273AT	27k ohm, 1/2W Carbon	
⚠R913	95KUEFCR39AW	0.39 ohm, 1/2W, Oxide Film	AA
⚠R915	95KUEEC220AT	22 ohm, 1/2W, Carbon	
⚠R916	95KUEEB2R7BF	2.7 ohm, Carbon	
⚠R917	95KUEEB103BE	10k ohm, Carbon	AA
⚠R922, ⚠ 923, ⚠ 924, ⚠ 925	95KUEEC271AT	270 ohm, 1/2W, Carbon	AA
⚠R927, ⚠R939	95KUEBB4R7AL	4.7 ohm, Fuse Resistor	AC
R930	95KUEZ0426ZK	3.9 ohm, Posistor	AF
⚠R933	95KUEEB221BF	220 ohm, Carbon	
⚠R949	95KUEEB822BE	8.2kohm, Carbon	
⚠R950	95KUEEB562BE	5.6k ohm, Carbon	AA

CONTROL

Ref. No.	Part No.	Description	Code
⚠R934	95KUFBA202CM	2k (B) 12V adj.	AC

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
⚠	QACCV2024GEZZ	AC Cord (VC-WD1)	AM
⚠	QACCJ3015GEZZ	AC Cord (VC-NX1)	AN
⚠FB901, 902, ⚠ 903	95KBFZ89206Z	Ferrite Bead (VC-NX1)	AB
⚠F901	95KPJCAY3151	Fuse, T3.15A, 250V (VC-WD1)	
⚠F901	95KPJCCD3151	Fuse, T3.15A, 250V (VC-NX1)	AE
⚠F902	95KPJCBG1001	Fuse (VC-NX1)	AF
⚠ICP901	95KPJCBE1001	Fuse (VC-WD1)	AF
PC	95KPKZ0194ZZ	Plug, 2 pin	AC
PM, PD	95KPKZ0442ZZ	Plug, 2 pin (VC-NX1)	AB
PA	95KPKZ0531ZZ	Plug, 11 pin	AE
PG	95KPKZ1035ZZ	Socket, 2pin	AC
PE	95KPKZ0446ZZ	Socket, 6pin	AB
⚠	95KPEZ0022ZZ	AC Out Let (VC-NX1)	
⚠	95KPHZ0128ZZ	Relay (VC-NX1)	

INFRARED REMOTE CONTROL CIRCUIT

Ref. No.	Part No.	Description	Code
	RRMCG0917GESA	Infrared Remote Control Unit (VC-WD1)	BD
	RRMCG0939GESA	Infrared Remote Control Unit (VC-NX1)	BD

TRANSISTORS

Ref. No.	Part No.	Description	Code
Q1	92P3TSN0005T	2SC2411K	AD

INTEGRATED CIRCUIT

Ref. No.	Part No.	Description	Code
IC1	92P3SQ00338		AW

DIODES AND CRYSTALS

Ref. No.	Part No.	Description	Code
D1, D2, D3, D4	92P3TSD0007T	DAN202K	AC
LED1	92P3QH00019	SLR932A-1-A	AE
LED2	92P3SL00043	SLP-144B-51	AD
X1	92P3TEF0002T	Filter	AG

MISCELLANEOUS

Ref. No.	Part No.	Description	Code
SW1	92PSRGPJJ008A	Switch, Shuttle	AR
SW2	92PSSSS21C85A	Switch, TV/VCR	AD

CABINET PARTS

Ref. No.	Part No.	Description	Code
1	92PFA11H0907	Cabinet (A)	AP
2	92PFA11H1003	Cabinet (B)	AP
3	92PFA11H1103	Cabinet (C)	AG
4	92PFA58B4601	Filter Cover	AF
5	92PFA61C5203	Knob (A)	AH
6	92PFA61C5303	Knob (B)	AF
7	92PFA42C6410	Rubber Key	AW
8	92PFA62D1115	Indication Plate (A)	AS
9	92PFA62D1202	Indication Plate (B)	AK
10	——	PWB	
11	92PSRGPJJ008A	Switch	AR
12	92P3ETFD0301	Battery Terminal	AD
13	92P2A391050	Screw	AA
14	92P2A401080	Screw	AA
15	92P2A461080	Screw	AA

THE OTHER PARTS

Ref. No.	Part No.	Description	Code
	TiNS-2003GEZZ	Operation manual (VC-WD1)	AW
	TiNS-2044GEZZ	Operation manual (VC-NX1)	BA
	QCNW-5650GEZZ	Antenna cord	AK
	CCNW-6096GE0S	A/V cord	AN
	QPLGA0010CEZZ	AC Plug adaptor (VC-WD1)	AF
	QPLGA0011CEZZ	AC Plug adaptor (VC-NX1)	AF

MECHANISM CHASSIS PARTS

Ref. No.	Part No.	Description	Code
1	PGiDS0023GEFW	Retaining Guide	AE
2	MSPRC0142GEFJ	Retaining Guide Spring	AA
3	MLEVC0022GEZZ	Half-Loading Lever	AF
4	MSPRT0270GEFJ	Half-Loading Lever Spring	AA
5	MLEVF0284GEFW	Half-Loading Drive Lever	AC
6	MSPRT0269GEFJ	Half-Loading Reciprocating Spring	AA
7	MLEVF0283GEZZ	Half-Loading Reciprocating Lever	AB
8	MSPRC0144GEFJ	Azimuth Spring	AA
9	RHEDU0070GEZZ	Audio/Control Head Ass'y	AS
10	PCAPS1015GEZZ	Retaining Guide Cap	AA
11	QPWBF3504GEZZ	Audio/Control Head PWB	AB
12	MLEVF0292GEZZ	Audio/Control Head Arm	AD
13	MSPRD0087GEFJ	Audio/Control Head Arm Spring	AA
14	LHLDZ1606GEZZ	Loading Block Holder Ass'y	AC
15	QPRBF3409GEZZ	Loading Block PWB	AD
16	RMOTM1049GEZZ	Loading Motor	AM
17	QPLGN0780GEZZ	Plug, 7 pin (MG)	AC
18	QSW-R0026GEZZ	Cam Switch	AE
19	NGERW1032GEZZ	Worm Wheel	AC
20	NPLYV0133GEZZ	Loading Motor Pulley	AC
21	NBLTK0058GE00	Loading Motor Belt	AA
22	NGERW1031GEZZ	Worm Ass'y	AC
23	NSFTG0045GEFJ	Worm Shaft	AB
24	NGERH1129GEZZ	Master Cam	AC
25	MLEVF0281GEZZ	Pinch Roller Lever Ass'y	AN
26	MLEVF0348GEZZ	Relay Shifter Lever	AD
27	MLEVC0033GEZZ	Reverse Guide	AG
28	MSPRD0086GEFJ	Reverse Guide Spring	AA
29	RMOTN2038GEZZ	Capstan D.D. Motor	AZ
30	MLEVP0136GEZZ	Slow Brake Lever	AA
31	MSPRT0329GEFJ	Slow Brake Spring	AA
32	MSPRC0151GEFJ	Reverse Guide Spring	AA
33	MLEVF0350GEZZ	Relay Gear Drive Lever	AE
34	MSLiF0043GEZZ	Brake Shifter	AK
35	NSFTZ0068GEFD	Brake Lock Shaft	AC
36	MSPRC0143GEFJ	Absorber Plate Spring	AB
37	MSPRT0274GEFJ	Video Search Brake Spring	AB
38	MLEVP0181GEZZ	Video Search Brake Lever	AA
39	MLEVP0131GEZZ	Video Search Reciprocating Lever	AC
40	RPLU-0083GEZZ	Brake Solenoid Ass'y	AF
41	NDAiV1046GEZZ	Take-Up Reel Disk Ass'y	AG
42	NGERH1128GEZZ	Idler Gear Ass'y	AN
43	NPLYV0134GEZZ	Reel Pulley	AC
44	MSPRD0085GEFJ	Shifter Spring	AB
45	PCOVP1018GEZZ	Shifter Spring Cover	AC
46	LHLDP1092GEZZ	Cassette LED Holder	AE
47	RH-PX0180GEZZ	Cassette LED	AD
48	QPWBF2977GEZZ	Reel Sensor PWB	AK
49	RH-PX0181GEZZ	Reel Sensor	AE

Ref. No.	Part No.	Description	Code
50	LCHSS0016GEZZ	Reel Block Chassis	AL
51	MLEVP0134GEZZ	Tension Adjusting Lever	AC
52	MLEVP0195GEZZ	Tension Release Lever	AC
53	MLEVP0132GEZZ	Back Tension Lever	AC
54	MSPRT0273GEFJ	Spring, Fast - Forward	AB
55	NDAiV1047GEZZ	Supply Reel Disk Ass'y	AH
56	MSPRT0272GEFJ	Main Brake Spring	AC
57	MLEVP0135GEZZ	Intermediate Lever	AC
58	MLEVP0129GEZZ	Main Take-Up Brake Lever	AE
59	MLEVP0128GEZZ	Main Supply Brake Lever	AE
60	NGERH1121GEZZ	Loading Relay Gear	AA
61	MSPRT0271GEFJ	Loading Reciprocating Spring	AA
62	NGERH1120GEZZ	Take-Up Loading Gear	AA
63	MLEVF0304GEZZ	Take-Up Loading Arm Ass'y	AC
64	NGERH1119GEZZ	Supply Loading Gear	AA
65	MLEVF0303GEZZ	Supply Loading Arm Ass'y	AC
66	LCHSM0125GEZZ	Main Chassis Ass'y	AS
67	LBNDK1002GEZZ	Tension Band Ass'y	AD
68	LHLDZ1607GEZZ	Tension Spring Hook Plate	AA
69	MSPRT0275GEFJ	Tension Spring	AA
70	MLEVF0291GEZZ	Tension Arm Ass'y	AF
72	MSLiF0049GEFW	Take-Up Pole Base Slider	AB
73	LPδLM0037GEZZ	Take-Up Pole Base Ass'y	AG
74	NRδLP0062GEZZ	Guide Roller Ass'y	AE
75	MSLiF0048GEFW	Supply Pole Base Slider	AB
76	LPδLM0036GEZZ	Supply Pole Base Ass'y	AG
77	PGiDM0066GEZZ	Take-Up Loading Rail	AB
78	PGiDM0067GEZZ	Supply Loading Rail	AB
79	NSFTL0563GEFW	Supply Impedance Roller Innor	AC
80	PGiDH0031GEFW	Supply Impedance Roller Flange	AA
81	NRδLP0084GEZZ	Supply Impedance Roller	AC
82	RHEDT0026GEZZ	Full Erase Head Ass'y	AK
83	QPWBF2936GEZZ	Full Erase Head PWB	AA
84	LANGA0054GEZZ	Supply Reel Stopper Ass'y	AD
85	NBLTK0059GE00	Reel Belt	AB
86	MLEVP0146GEZZ	Auxiliary Fast-Forward Brake Lever	AE
87	MSPRT0282GEFJ	Auxiliary Fast-Forward Brake Spring	AB
89	QPLGN0378GEZZ	Plug, 3 pin	AB
90	PGiDC0039GEFW	Drum Base	AL
92	QBRSK0021GEZZ	Earth Brush Ass'y	AC
93	RMδTP1107GEZZ	Drum D.D. Motor Ass'y	AN
97	QCNW-6479GEZZ	Full Flat Cable	AK
99	RDTCH0018GEZZ	Dew Sensor	AG
100	QSδCN0534REZZ	Socket, 5 pin (MF)	AC
101	VRS-TW2ED221J	220 ohm, 1/4W, 5%, Oxide Film	AA
102	VCKYTV1HB102K	1000pF, 50V, 10%, Ceramic	AA
103	VRS-TV1JD473J	47k ohm, 1/10W, 5%, Oxide Film	AA

Ref. No.	Part No.	Description	Code
105	LANGA0051GEFW	Take-Up Reel Disk Catch Holder	AB
106	PGiDS0027GEZZ	Supply Impedance Roller Flange (Low)	AA
107	LANGF7061GEZZ	Release Pin Angle Ass'y	AC
108	PCAPS1018GEZZ	Slow Brake Shaft Cap	AA
113	VCKZPA1HF103Z	0.01μF, 50V, +80%~-20%, Ceramic	AA
114	QPLGN0229TAZZ	Plug, 2 pin	AB
115	QPLGN0578GEZZ	Plug, 5 pin (MH)	AB
122	CCHSS0018GE02	Reel Block Ass'y	AZ
123	LHLDW3009GEZZ	Wire Holder	AA
124	QCNW-6563GEZZ	Connecting Cord	AH
128	CLEVP0208GE00	AHC Driver Lever Ass'y	AE
129	CLEVP0209GE00	AHC Roller Ass'y	AG
135	94SSEE0193721A	Drum D.D Motor IC	AU
136	94SSEE0193731A	Capstan D.D. Motor IC	AU
137	NFLYV0070GEZZ	Drum Damper	AF
139	DDRMW0010HE08	Drum Ass'y (VC-NX1)	BY
139	DDRMW0010HE14	Drum Ass'y (VC-WD1)	BY
140	DDRML0015HE02	Lower Drum Ass'y	BL
141	LHLDW1033CE00	Wire Holder	AA

CASSETTE HOUSING CONTROL PARTS

Ref. No.	Part No.	Description	Code
	CHLDX3053GE52	Cassette Housing Control Assembly	AY
301	PGiDM0069GE00	Down Guide	AC
302	QSW-F0034GEZZ	Cassette Erase Protection Switch	AC
303	LHLDX1014GE00	Cessette Housing Frame (R)	AC
304	MARMP0043GE00	Open Lever A	AA
305	MARMP0044GE00	Open Lever B	AA
306	NGERW1036GEZZ	Phase Gear	AA
307	MSPRT0290GEFJ	Reciprocating Lever Spring	AA
308	MSPRD0088GEFJ	Drive Gear Spring (R)	AA
309	NGERW1034GEZZ	Drive Gear (R)	AB
310	MSPRT0277GEFJ	Reciprocating Spring	AA
311	NGERW1033GEZZ	Worm Wheel Gear	AB
312	LANGF9355GEFW	Worm Bracket	AB
313	NBRGP0013GEZZ	Bearing	AA
314	MLEVP0142GE00	Open Lever	AA
315	MSPRD0091GEFJ	Open Lever Spring	AA
316	MLEVP0141GEZZ	Switching Lever	AA
317	MSPRT0280GEFJ	Switching Lever Spring	AA
318	NSFTD0016GEZZ	Worm Shaft Ass'y	AE
319	MLEVP0140GEZZ	Clutch Lock Lever	AA

Ref. No.	Part No.	Description	Code
320	MSPRT0279GEFJ	Clutch Lock Lever Spring	AA
321	MLEVP0139GEZZ	Clutch Release Lever	AA
322	MSPRD0092GEFJ	Clutch Release Lever Spring	AA
323	MLEVP0138GEZZ	Clutch Lever	AA
324	NPLYV0135GEZZ	Pulley	AA
325	NBLTK0060GE00	Cassette Loading Belt	AB
326	LANGF9354GEFW	Upper Plate	AD
327	LHLDX1013GE00	Slider Holder (L)	AB
328	MSPRP0115GEFJ	Cassette Spring	AB
329	LANGF9357GEFW	Slider Lock (L)	AA
330	MSPRT0281GEFJ	Slider Lock Spring	AA
331	MSLiF0044GEFW	Slider	AF
332	MARMP0039GEZZ	Lock Release Lever	AA
333	QSW-F0037GEZZ	Auto Load Switch	AD
334	MLEVP0143GE00	Slider Lock Cover	AA
335	LANGF9356GEFW	Slider Lock (R)	AA
336	LHLDX1012GE00	Slider Holder (R)	AB
337	NGERW1035GEZZ	Drive Gear (L)	AB
338	MSPRD0089GEFJ	Drive Gear Spring (L)	AA
339	LHLDX1015GE00	Cassette Housing Frame (L)	AC
340	NSFTD0015GEFD	Main Shaft	AD
341	QPWBF2894GEZZ	End Sensor PWB	AB
342	RH-PX0176GEZZ	Phototransistor	AE
343	QPWBF3194GEZZ	Start Sensor PWB	AC
344	QSW-F0040GEZZ	Cassette Switch	AD
347	QSOCN0595GEZZ	Socket, 5 pin	AB
348	VSDTC124F//-1	Transistor	AC
349	VS2SA937-Q/-1	Transistor	AC
350	VRD-RA2BE153J	15k ohm, 1/8W, 5%, Carbon	AA
351	VRD-RA2BE223J	22k ohm, 1/8W, 5%, Carbon	AA
352	VRD-RA2BE103J	10k ohm, 1/8W, 5%, Carbon	AA
353	VRD-RA2BE472J	4.7k ohm, 1/8W, 5%, Carbon	AA
354	VRD-RA2BE332J	3.3k ohm, 1/8W, 5%, Carbon	AA
355	RC-KZ0028GEZZ	0.047μF, 16V, 20%, Ceramic	AA
356	QCNW-4789GEZZ	Connecting Cord	AF
357	QCNW-5421GEZZ	Connecting Cord	AK
401	LX-WZ1020GE00	Cut Washer (4.2W-6.0-0.5)	AA
402	LX-HZ3046GEFD	Screw (B Tight BTN3P + 6S)	AA
403	NPLYV0137GEZZ	Cupling	AA
404	NPLYV0136GEZZ	Clutch	AA
405	NGERW1037GEZZ	Worm	AA
406	ZTAPEZ790008E	Rubber Mat	AD
407	VCKYD41CY103N	0.001μF, 16V, Ceramic	AA

SCREWS, NUTS, WASHERS AND WIRE CLAMP

Ref. No.	Part No.	Description	Code
201	XNFSD20-16000	Adjusting Nut	AA
202	XWHSD26-05060	Washer W2.6S-6-0.5	AA
203	XRESJ20-04000	E Ring-2	AA
204	LX-BZ3095GEFD	AC Head Screw	AA
205	XBPSD26P06000	Azimuth Adjusting Screw	AA
206	LX-BZ3096GEFD	Tilt Adjusting Screw	AA
207	XNFSD40-31000	Adjusting Nut (A/C Head)	AB
208	LX-WZ1048GEZZ	Washer W3.1-5.4-0.5	AA
209	LX-WZ1041GE00	Washer W2.6-6-0.5 (LM)	AA
211	XRESJ30-06000	E Ring-3	AA
212	XWHJZ45-02060	Washer PSW4.6-6-0.25	AA
213	LX-NZ3046GEFW	Adjusting Nut	AB
215	LX-WZ1003GE00	Washer CW2.0-5-0.5	AA
216	XRESJ12-03000	E Ring-1.2-T0.3	AA
217	XHPSD26P03000	Screw S2.6P + 3S	AA
218	XHPSD20P03000	Screw S2P + 3S	AA
219	XRESJ25-04000	E Ring-2.5	AA
220	XWHJZ25-05050	Washer W2.6-5-0.5	AA
221	XWHJZ25-01050	Washer W2.6-5-0.13	AA
222	XWHJZ25-02050	Washer W2.6-5-0.25	AA
223	LX-HZ3043GEZZ	Screw W2.6P + 6S	AA
224	LX-BZ3099GEZZ	Screw WSW2P + 11S(5W)	AB
225	LX-XZ3030GEFD	Screw M2 x 4	AC
226	XHPSD26P08WS0	Screw C2.6P + 8S	AA
227	XJPSD26P08WS0	B Tight Screw C2.6P + 8S	AA
228	XHPSD30P08WS0	Screw C3P + 8S	AA
229	LX-WZ1040GE00	Washer CW2.5-6-0.5	AA
230	XJBSD20P06000	B Tight Screw 2P + 6S	AA
232	LX-HZ3056GEFD	Screw WSW3P + 10S-6W	AA
233	LX-BZ3064GEFN	Screw SW3P + 6S-Ni	AA
234	XBPSD26P12J00	Screw SW2.6P + 12S	AA
235	XBPSD30P05J00	Screw SW 3P + 5S	AA
237	XHPSD30P06000	Screw S3P + 6S	AA
238	LX-RZ3001AEZZ	E Ring (Curl)	AA
239	LX-WZ1042GE00	Washer CW2.7-7-0.5	AA
242	XWHJZ25-04050	Washer W26-5-0.4	AA
243	XHPSD30P04WS0	Screw C3P + 4S	AA

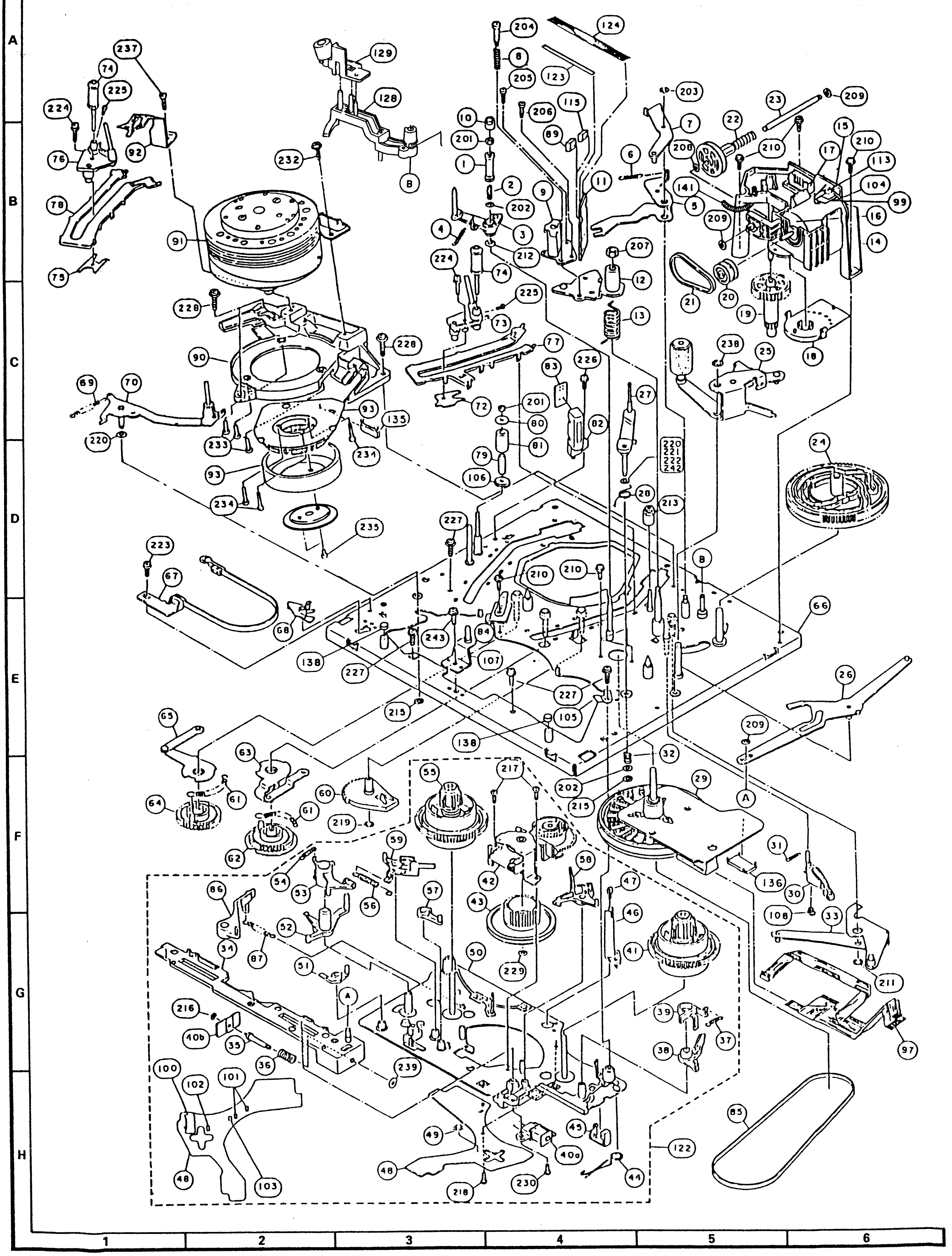
MECHANICAL PARTS

Ref. No.	Part No.	Description	Code
601	GCABA3080GESA	Top Cabinet (VC-WD1)	BC
601	GCABA3080GEST	Top Cabinet (VC-NX1)	AT
602	GCABB1081GEZZ	Bottom Cabinet (VC-WD1)	AR
602	GCABB1094GEZZ	Bottom Cabinet (VC-NX1)	AR
603	GBDYU3077GEZZ	Bottom Plate	AH
604	GCŏVA1756GEZZ	Antenna Terminal Cover	AF
605	LHLDZ1746GEZZ	RF Converter Holder	AB
607	LHLDZ1616GEZZ	PWB Holder (System Control / SERVO)	AA
608	LHLDF1078GEZZ	PWB Holder B (HiFi)	AA
612	LHLDZ1706GEZZ	Fluorescent Display Holder	AC
614	LHLDP1130GEZZ	System LED Holder	AE
617	LHLDP1089GE00	Power LED Holder	AA
618	QEARP0276GEFW	Earth Plate	AA
620	LX-HZ3040GEFN	Screw (Top Cabinet) (VC-WD1)	AA
620	LX-HZ3040GEFF	Screw (Top Cabinet) (VC-NX1)	AA
621	XEBSD30P12000	Screw	AA
622	XEBSD40P12000	Screw (Power, Mecha)	AA
623	XHPSD30P06WS0	Screw (H. Amp.)	AA
625	LX-HZ3047GEFF	Screw (Bottom Cabinet)	AA
626	LANGF9367GEFW	Cassette Holder Angle	AB
627	PSPAZ0202GEZZ	Spacer	AC
631	JKNBP1063GESA	Buttom	AB
632	JKNBP1064GESA	Buttom	AB
634	XHPSF30P08WS0	Screw (VC-NX1)	AA
635	TLABM2448GEZZ	Model Label (VC-WD1)	AB
635	TLABM2529GEZZ	Model Label (VC-NX1)	AB
636	LHLDW1018TAZZ	Wire Holder	AA
637	RCŏRF0007GEZZ	Core	AE
638	RCŏRF0008GEZZ	Core	AL
640	MSPRC0145GEFJ	Earth Spring	AA
641	LHLDZ1822GE00	Nicam Holder (A)	AD
642	LHLDZ1823GEZZ	Nicam Holder (B)	AE
643	XEBSD30P08000	Screw	AA
645	LANGT9158GEFW	Motor Fan Angle	AF
646	NFANR0001GE00	FAN	AZ
647	LANGT9157GEFW	Angle (L)	AF
648	LANGT9156GEFW	Angle (R)	
649	PSLDM9279GEFW	Shild	AG
650	PSLDM9281GEFW	Shild	AD
651	PSLDM9280GEFW	Shild	AF
652	XBPSD30P18JS0	Screw	AA
653	PSPAZ0317GEZZ	Spacer	AA

FRONT PANEL PARTS

Ref. No.	Part No.	Description	Code
500	CPNLC1665GE10	Front Panel Ass'y (VC-WD1)	BF
500	CPNLC1665GE11	Front Panel Ass'y (VC-NX1)	BG
500-1	JBTN-2486GESE	Button, Eject (VC-WD1)	AE
500-1	JBTN-2486GESF	Button, Eject (VC-NX1)	AE
500-2	JBTN-2485GESE	Button, Power (VC-WD1)	AE
500-2	JBTN-2485GESF	Button, Power (VC-NX1)	AE
500-3	GCŏVA1661GESA	Power LED Cover	AC
500-4	MSPRD0103GEFJ	Cassette Cover Spring	AB
500-6	HDECQ0952GESA	Cassette Cover (VC-WD1)	AM
500-6	HDECQ0969GESA	Cassette Cover (VC-NX1)	AM
500-8	JBTN-2227GESA	Button, REC.	AA
500-9	LHLDZ1665GEZZ	Cassette Cover Shaft Holder	AB
500-10	QEARP0272GEFW	Earth Plate (Panel)	AC
500-11	PCŏVU9195GESB	Fluorescent Display Filter	AD
500-12	PKAi-0002GEZZ	Door Latch	AD
500-13	GCŏVA1425GEZZ	Infrared R/C Receiver Filter	AC
500-14	GCŏVA1759GESA	System LED Cover (L)	AG
500-15	HDECQ0927GESA	Decoration Panel (VC-WD1)	AK
500-15	HDECQ0927GESB	Decoration Panel (VC-NX1)	AK
500-16	HDECQ0762GESE	Decorative Foot (R) (VC-WD1)	AE
500-16	HDECQ0762GESA	Decorative Foot (R) (VC-NX1)	AE
500-17	HDECQ0767GESE	Decorative Foot (L) (VC-WD1)	AE
500-17	HDECQ0767GESA	Decorative Foot (L) (VC-NX1)	AE
500-18	HiNDP1890GESA	Indication Panel (Inside the Door) (VC-WD1)	AK
500-18	HiNDP1905GESA	Indication Panel (Inside the Door) (VC-NX1)	AK
500-19	HDECQ0760GESA	Decoration Panel	AG
500-20	TLABH0481GEZZ	Tuning Label	AB
500-21	LANGF9513GEZZ	Angle	AF
500-22	GDŏRF2053GESA	Door (VC-WD1)	AM
500-22	GDŏRF2105GESA	Door (VC-NX1)	AM
500-23	HBDGB1005GESA	Badge "SHARP" (VC-WD1)	AD
500-23	HBDGB1007GESA	Badge "SHARP" (VC-NX1)	AD
500-24	TLABZ0937GEZZ	Features Label (VC-WD1)	AH
500-24	TLABZ0979GEZZ	Features Label (VC-NX1)	AL
500-27	XEBSD30P10000	Screw	AA
500-28	PSPAH0079GEZZ	Spacer	AC
500-30	GCŏVA1755GESA	System LED Cover (R)	AG

EXPLODED VIEWS
MECHANISM CHASSIS PARTS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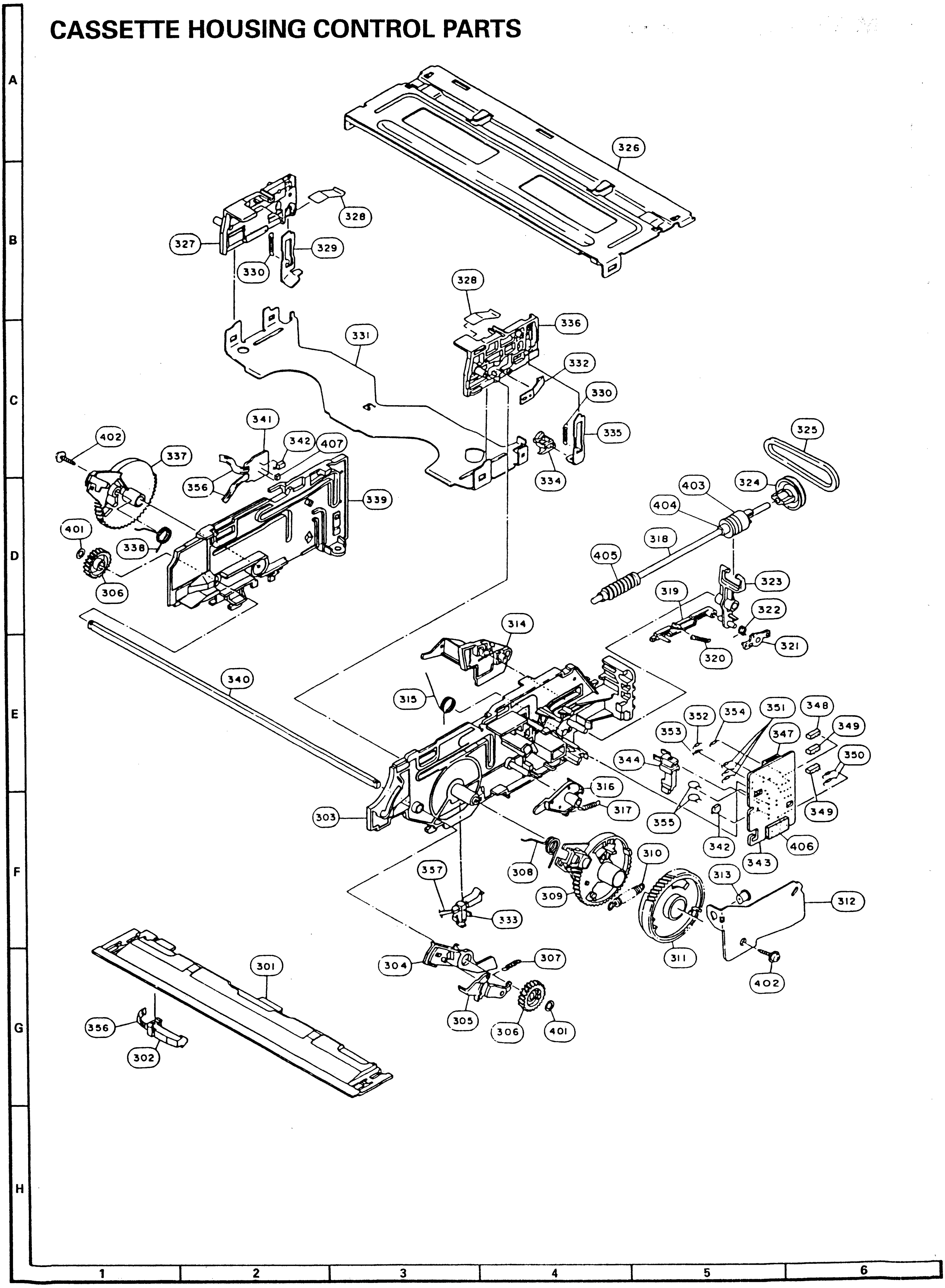
CASSETTE HOUSING CONTROL PARTS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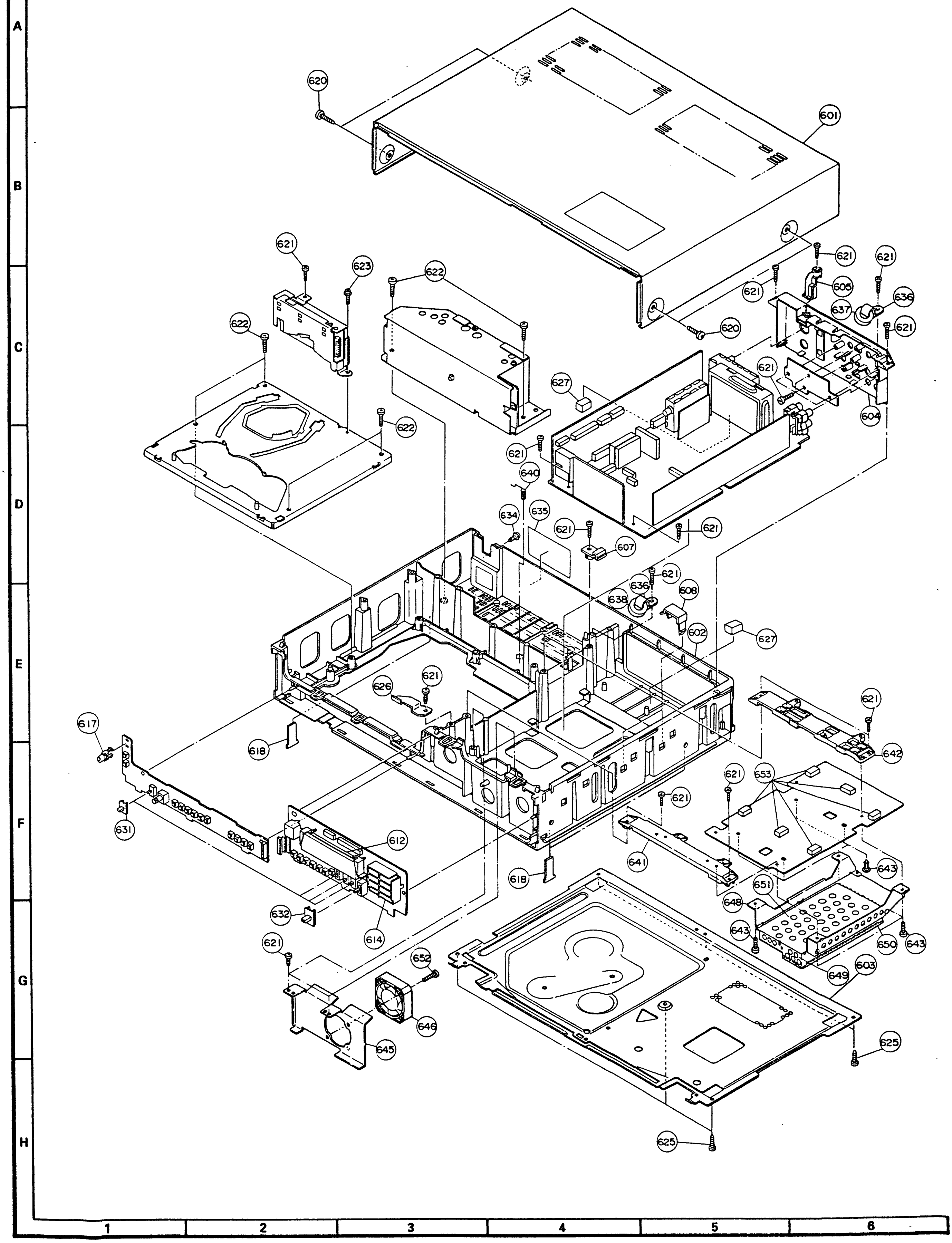
MECHANICAL PARTS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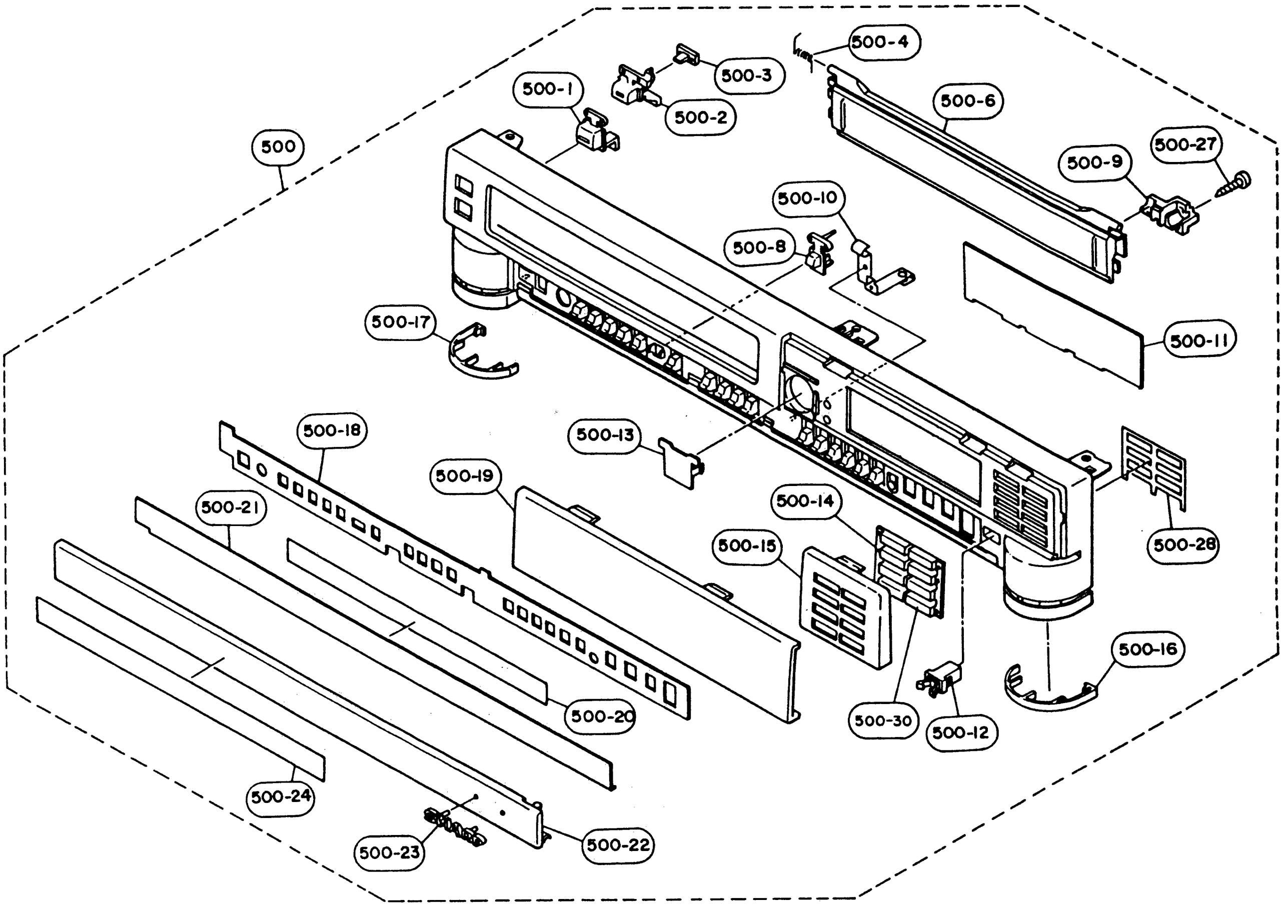
FRONT PANEL PARTS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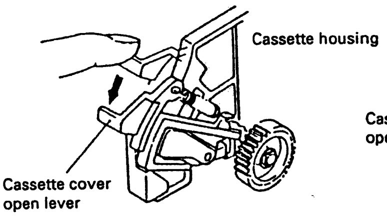
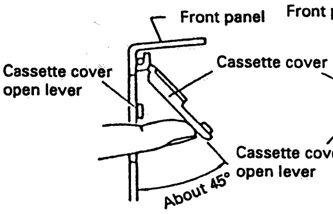
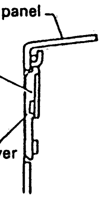
PRECAUTIONS ON FRONT PANEL SET-UP


Cassette housing
Cassette cover
open lever

Before attaching the front panel in position. make sure that the cassette cover open lever is in its right place (lowermost). If it is out of position, push it down with a finger.

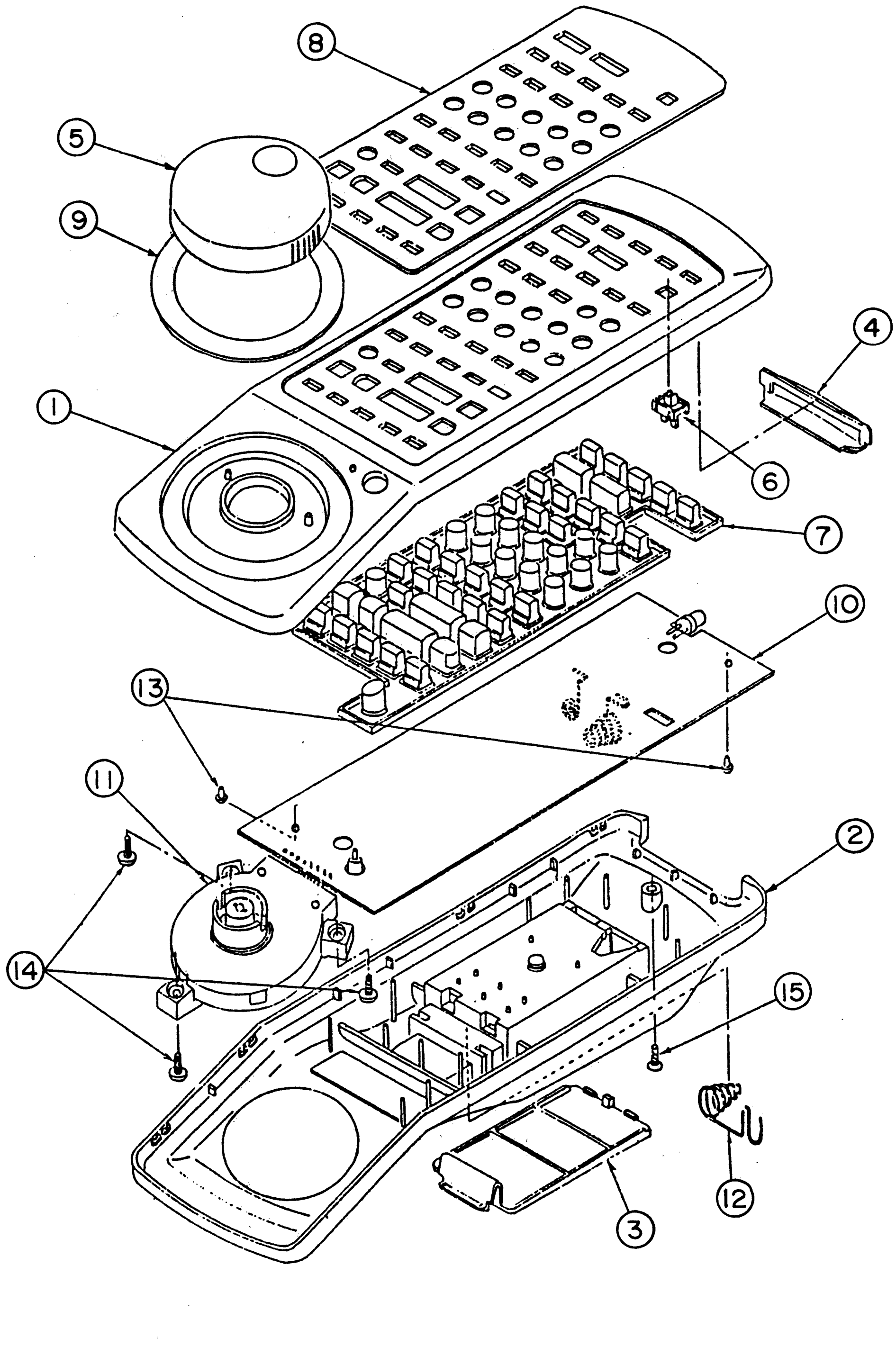

Front panel
Cassette cover
open lever
Cassette cover
Cassette cover
open lever
About 45°

Keep the cassette cover about 45° open and make sure that the cassette cover open lever is between the front panel and the cassette cover. Now fix the front panel in place.


Front panel

Do not mount the front panel with the cassette cover tilted too open. Otherwise the cassette cover might wrongly run on the cassette housing.

INFRARED REMOTE CONTROL UNIT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PACKING OF THE SET

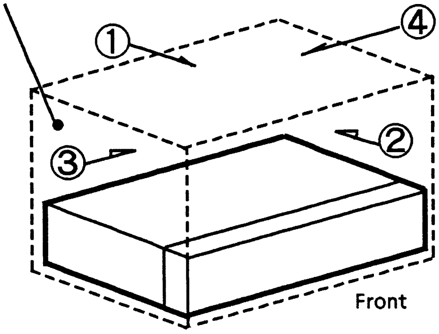
• Setting position of the Knobs

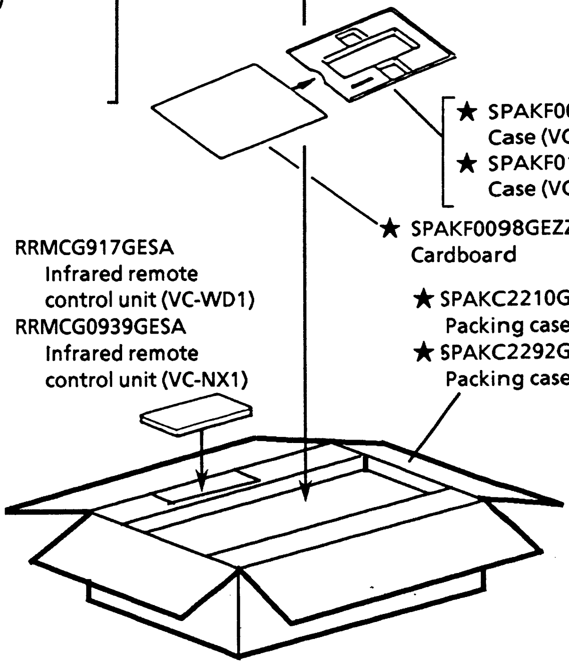
System SW	at "B/G" Position	Picture tone	CENTER
Colour mode	at "AUTO" Position	Test signal	at "OFF" Position
BS on line	at "ON" Position	Audio ATT	at "OFF" Position
SECAM mode	at "MESECAM" Position	Head Select	at "Fine" Position

Accessories

★ T i NS - 2003GEZZ	Operation manual (VC-WD1)
★ T i NS - 2044GEZZ	Operation manual (VC-NX1)
★ QCNW-5650GEZZ	Antenna cord
★ CCNW-6096GE0S	A/V cord
★ QPLGA0010CEZZ	AC plug adaptor (VC-WD1)
★ QPLGA0011CEZZ	AC plug adaptor (VC-NX1)
★ QPLGF0101GEZZ	ANT plug (VC-NX1)
★ QPLGJ0105CEZZ	PAL Din plug (VC-NX1)
★ RBLN-0025GEZZ	Balun (VC-NX1)
★ UMiXA0005GEZZ	U / V Mixer (VC-NX1)

★ SSAKA0084GEZZ
Polystyrene sack





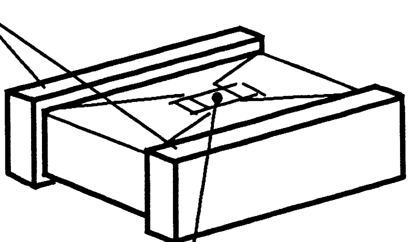
★ SPAKF0099GEZZ
Case (VC-WD1)
★ SPAKF0100GEZZ
Case (VC-NX1)

★ SPAKF0098GEZZ
Cardboard

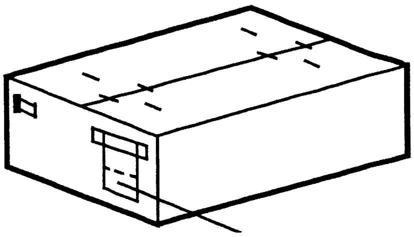
RRMCG917GESA
Infrared remote
control unit (VC-WD1)
RRMCG0939GESA
Infrared remote
control unit (VC-NX1)

★ SPAKC2210GEZZ
Packing case (VC-WD1)
★ SPAKC2292GEZZ
Packing case (VC-NX1)

★ SPAKX0650GEZZ
Buffer material



Fix with craft tape



★ TLABK2448GEZZ
No. Card (VC-WD1)
★ TLABK2529GEZZ
No. Card (VC-NX1)

★ Not Replacement Items